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OCTOBER, 1945

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★ Minicom Photography

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Lars Moen on Lens Coating—
see page 47.

COVER—Two Kodachromes by Walter V. Strate

EDITORIAL ASSOCIATES: Alan Fontaine, George R. Hoxie, A.P.S.A., L. Moholy-Nagy, Audrey Goldsmith.
CONTRIBUTING EDITORS: Earl Theisen, Percival Wilde, A.R.P.S., Stuyvesant Peabody, F.R.P.S.-F.P.S.A.
EDITORIAL SECRETARY: Agnes Reber, ART DIRECTOR: Robert Wood, BUSINESS MANAGER: Aron M. Mathies.
NEW YORK EDITOR: Frank Zachary, 35 Park Avenue, New York 16, New York. Phone: LEX. 2-6183.

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cover and 2½ pages in LIFE (March '45); numerous newspaper and magazine shots and a growing clientele.



2. Opportunities for women abound in the field of photography! Among the many successful feminine SMP graduates number JANE PROWELL, (above) whose new job is out in Indiana. Miss Prowell writes that she owes her good fortune to the SMP Placement Bureau.

4. Fighting cameramen is SMP graduate SGT. JOSEPH B. BRIGNOLO (right). His sister, Mrs. Anne Houelle also studied at the School, takes his place in the studio. Now Brignolo is planning post-war brush-up courses at the School.



5. This really happened! Two months after his graduation from SMP, STEFAN ZWIG (left) was made chief photographer at the Hecht Co., mammoth dept. store in Washington, D. C. Writes Zwig, "My few months at the School were really well-spent!"



THE SCHOOL OF MODERN PHOTOGRAPHY
134 East 57th St., New York City

1. By the score, graduates of America's most modern school of photography swing high into the field of photography to attain remarkable success with surprising speed. Breathtaking example is HARRIET ARNOLD (left) who was graduated only a year and a half ago. Already she has to her credit a



3. Just placed with famed Toni Frissell is ex-G. I. GEORGE S. MORR (above) who started his courses at the School only 8 months ago! More and more of the nation's top-flight photographers are turning to SMP for career-minded assistants. Yes, SMPers get ahead fast.

6. Information Please! "What about tuition fees?" Specialized courses, day or evening, are exceptionally moderate. Visit the School, or write for outline of courses. Address H. P. Sidel, director, Dept. M10.

The Last Word

He Dood It

Sir:

I have built my own dark room, enlarger and other gadgets while here in New Guinea and thought you might publish a few of my ideas for the other fellows that are handicapped out in these forsaken jungles.

Developing trays and acid resisting paint are a few of the many things that are impossible to get ahold of out here. I made my trays from plywood and gave them a heavy coating of paraffin. They have been in use for 16 months.

Paraffin also prevents chemicals acting on my funnel, which is made of tin.

My enlarger is made of three (3) tin cans; one for the light housing and the other two serve as my bellows. A hole in the bottom of the lower can hold my lenses. My negative carrier is made from masonite.

For best results in making a ground glass, I put the glass on a smooth board and nail thin strips around it to prevent it from moving. I put valve grinding compound on an oil stone and work it in one direction only. This gives me a clear well-ground glass.

I have experimented a lot in copying pictures and find the best system is to make a paper negative by using my enlarger. I focus the object to be copied onto my ground glass. Then I replace the ground glass with a clear glass and put a piece of projection paper on the glass and a piece of masonite on the paper to hold it flat. The picture to be copied is then exposed to light. The paper negative is then processed and put in the place of the original copy. This in turn is exposed in the same manner as to obtain a negative. The result is a clear copy of the original print.

In case of single weight paper, one can get excellent results by making a negative by the above process and then making a contact print from the negative. This gives very little grain to the finished print.

HARVEY J. STEFFENS,
CM2C, USNR,

Pad No. 3, Fleet P. O., San Francisco, Calif.

What Make—>?

Sir:

Help!

The documentary photograph in our advertisement for your October issue has practically caused pitched battles at our plant.

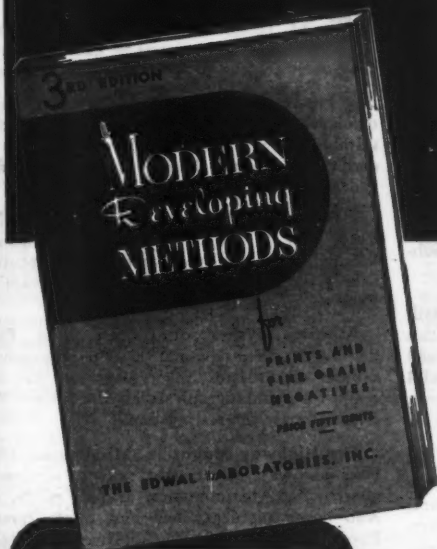
The "cause celebre" concerns the make and model of the car represented in the picture. One faction emphatically states the car is vintage 1903; the other faction, equally emphatic, calls the shot for 1908. Thus the battle has been joined with neither side knowing the actual make of the car.

Can MINICAM readers settle the issue?

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(A chapter for advanced amateurs)
- *8. TONING
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Photo Markets

By AGNES REBER

Editorial Secretary, Minicam Photography

Air World, 40 Worth Street, New York City, 13. This publication wants aviation photographs, rare old planes or rare shots of rare planes. Also photos of any new aviation device or aircraft. Uses black and white for inside, and Kodachromes for cover. This is good news for all aviation photo collectors. Payment is \$5.00 for each photo, and is made on publication. Price for color depends on quality.

Modern Woman, 5225 Wilshire Boulevard, Los Angeles 36. Louise Denny, editor of this magazine and of the other George M. Wessell publications, **Modern Hostess**, **Commercial Refrigeration With Ice**, can use attractive, sharp glossies (8x10) of ice used in homes or commercial establishments—for beverages, for market or restaurant display, for shipment of foods, or in any spectacular, dramatic, or artistic manner. Also photographs centered around frozen food lockers—way of handling frozen foods, people patronizing locker plants, inc. Miss Denny likes close-ups, human interest—people doing things. Black and white only. Payment is \$3.50 and \$5.00 per photo, with \$10 for good covers. Payment is made on acceptance.

American School Board Journal, 540 North Milwaukee Street, Milwaukee 1, Wisconsin. Wants photographs of architecturally significant school buildings, particularly of the modernistic type. Pictures of classrooms and other school interiors with children at work or study. Human interest pictures of children of school age. Payment is \$3.00 to \$5.00 each, made promptly upon receipt of bill.

Southern Laundry and Cleaner, 344 Camp Street, New Orleans 12, Louisiana. Wants pictures of laundries and dry cleaning plants, and personnel. These should be taken in territory bounded by Baltimore, Ohio River and St. Louis on north, and includes Kansas, Oklahoma, Texas, Arizona and New Mexico. Payment is \$1.00 to \$3.00, unless original assignment with higher rates is given.

Syndicate Store Merchandiser, 79 Madison Avenue, New York City, 16. Photographs of personalities such as manager, assistant managers, floor girls, etc., connected with five and ten cent stores. Must have related news value.

Also good photographs of windows and interior displays—prints must be sharp with clear detail, suitable for reproduction. Payment varies according to value. Negatives are required at times.

Fishing Gazette, 461 Eighth Avenue, New York City, 1. Wants photos of commercial fishing boats, fish companies, fish executives, fishing scenes, with full explanatory captions. Pays \$1 to \$5, following publication.

Asbestos, 17th Floor, Inquirer Bldg., Philadelphia 30, Pennsylvania. Uses photographs on subject of Asbestos only. Does not pay over \$3.00 for a photograph unless the subject is an outstandingly interesting one.

The Highway Magazine, Middletown, Ohio. Uses highway, street, and railway pictures of construction, maintenance, traffic, safety, etc. Also cover pictures, fliers and photo spreads. Pays \$1 and up, with \$5 for covers. No color.

The Welding Engineer, 506 S. Abash Avenue, Chicago 5, Illinois. Pics of welding jobs which are unusual because of size and character of welding application. Unpublished pictures of arc or gas welding, and flame cutting. Payment is \$1.50, and up, made on publication.

National Carbonator and Bottler, 161 Spring Street, N. W., Atlanta 3, Georgia. Photographs dealing with activities of soft drink bottlers, new plants, personnel of plants when there is a news story concerned. The editor writes that he is anxious to receive photographs that can be used in a publication reaching the nation's soft drink bottling plants. Payment is \$20 for cover photos; \$5.00 to \$10.00 for inside photos, depending on photo and value to magazine. Made on acceptance.

The Bruce Publishing Company, 540 N. Milwaukee Street, Milwaukee 1, Wisconsin. We received the following note from this company: "It is difficult to make a definite statement concerning the photographs needed because our needs grow out of textbooks and general works which we have in hand from time to time and which vary according to character. At present, we are in need of photographs for a high school sociology; pictures illustrating social and economic conditions. Rates vary from \$2 to \$5, made on acceptance.

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New South Baker, 761 Peachtree Street, N. W., Atlanta, Georgia. Wants photos of bakeries located in Southern states; bakery personnel, particularly owners and executives or department heads. Payment is \$1.00 per picture, made after publication.

Leaves, P. O. Box 87, Detroit 31, Michigan. We want to call to your attention that the address given for this publication in our August issue was incorrect. The above address is the correct one to be used.

The Crown, P. O. Box 1837, Baltimore 3, Maryland. Miss Sylvia Sard, Editor, writes that the following black-and-white glossies are needed: Cover photos—striking landscapes showing distinctly different sections of the country, as well as other good photos. Sets of photos—general interest, with captions and short explanations. Photographs accompanying authoritative articles on timely subjects and raw materials. Plant scenes (interior and exterior), personnel, etc., built around a short story about a customer. Payment is \$10.00 for cover; \$5.00 each for all pix used inside; made on acceptance. Accompanying articles are paid for according to use and value.

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MINICAM'S SECOND ANNUAL LIST OF PHOTOGRAPHIC INSTRUCTORS

PART III

For a complete booklet listing Parts I, II, and III of this series, including some additional schools whose catalogues came after press date, send 25c to Book Department, Minicam Photography, 22 East 12th Street, Cincinnati 10, Ohio. Booklet also includes camera clubs and photographic societies.

NEW YORK

BROOKLYN MUSEUM ART SCHOOL, Eastern Parkway, Brooklyn, New York. Four courses: Fundamentals of Photography, Advanced Technique and Pictorialism, both taught by Herman de Wetter. Portraiture, taught by Helene Sanders. Commercial Techniques, taught by Siegfried R. Gutterman. Tuition for Portraiture Course is \$31 for term of 15 sessions; tuition for other three courses is \$26. Evenings, 7:30 to 9:30. Lecture and demonstration; Fall and Spring terms; open to all. Courses approved by New York State Department of Education. Further information from Clarence A. Brodeur, Supervisor.

CENTRAL BRANCH Y. M. C. A., 55 Hanson Place, Brooklyn 17, New York. J. Gislain Lootens, F.R.P.S., Instructor. Fundamentals of Photography: begins October 1; meets Monday evenings for 15 weekly sessions of 2½ hours each; \$30 per course. Advanced Technique: begins October 5; meets Tuesday evenings for 15 weekly sessions of 2½ hours each. Also a period for personal problems from 7:30 to 8:00; \$35 per course. Portraiture and Retouching: Friday evenings, six sessions—limited group, \$30. Registrations by mail are accepted, with \$5 deposit on each course.

ROBERT DESME, 144—91st Street, Brooklyn 9, New York. (Instructor at Brooklyn Museum.) Offers course in bromoil transfer. Write Mr. Desme for information regarding private lessons and classes.

THE PHOTOGRAPHIC GUILD OF BUFFALO, Downtown YMCA, Buffalo, New York. Various club members with photographic experience and ability are instructors. Enlarging, developing, toning, spotting and retouching, proper mounting and presentation are studied and discussed. Two hours a week for four weeks. Laboratory arrangements. Tuition \$1 for members, \$5 for non-members.

SENECA VOCATIONAL HIGH SCHOOL, Buffalo, New York. Henry W. Shepard, Instructor. Practical photography is taught. This course was started in its present form seventeen years ago. It is free to city residents. 15 hours a week for four years of forty weeks.

ST. LAWRENCE UNIVERSITY, Canton, New York. W. C. Priest, Instructor. Physics Department offers course which is covered by regular college tuition. Some chemicals and photographic supplies furnished the student as well as cameras, enlargers, printers, etc. Darkroom facilities.

QUEENS COLLEGE, Flushing, New York. Physics Department offers Photography under Professor D. E. Kirkpatrick. Course is general, and designed to present the fundamentals necessary for photographic work in the many fields of scholarship in which photography is used. Laboratory experiments. Student may take photography course only for tuition of \$21, 16 weeks.

AMERICAN WOMEN'S VOLUNTARY SERVICES, INC., Nationwide War Service Photography, 292 Madison Avenue, New York 17, New York. Courses in photography are offered in Units throughout the country giving training in war photography, subdivided into basic photography, darkroom photography, and advanced photography. Two hours once a week for six weeks for each of the three courses. Courses offered all year round. Certificates are given. Registration is open to any man or woman who is a citizen of the United States and owns a camera.

BARNARD COLLEGE, Columbia University, New York City. Dr. Agnes Townsend, Instructor. Department of Physics offers course in photography; Spring term of fifteen weeks; one lecture and 4 laboratory hours per week. The tuition is \$48 if taken separately from college curriculum.

ADOLF FASSBENDER STUDIO, 853 Seventh Avenue, New York City. Adolf Fassbender, Instructor. Individual and small group instruction in all phases of photography. Instruction is by appointment only.

J. GHISLAIN LOOTENS, 277 Lexington Avenue, New York, N. Y. Specialized Photographic Instruction covering all branches of Photography. Private instruction by appointment. Lessons adjusted to individual needs. Fee: \$20.00—two-hour session.

METROPOLITAN VOCATIONAL HIGH SCHOOL, Oliver, Oak, and James Streets, New York City. Complete course in all phases of commercial photography. Colors, mural, action, copying, printing, developing, still life, commercial, portraiture, retouching, enlarging.

MUSEUM OF MODERN ART, 9 West 54th Street, New York City (19). Lecture courses are tentatively planned for the autumn and winter season. As soon as they are de-

finally scheduled it will be announced.

NEW SCHOOL FOR SOCIAL RESEARCH, 66 West 12th Street, New York City. Berenice Abbott, Instructor. Basic photography offered in fall term. Advanced photography offered in spring term. Tuition \$30 per course; 2 hours a week for 15 weeks. These classes are conducted by the workshop method with field trips and a considerable amount of practical work in the darkroom. The objective is to present photography as a living means of expression in the modern world.

NEW YORK INSTITUTE OF PHOTOGRAPHY, 10 West 33 Street, New York City 1. This school has been teaching photography for 35 years; offers both home study and personal attendance classes. The Home Study Course covers Commercial, Portraiture, News and Natural Color Photography in the one course. Tuition is \$77.50; certificate of graduation issued. The Resident Training at the school has classes in Commercial, Portrait, Motion Picture, and Natural Color Photography. These may be taken separately or in combination. New students are accepted the year round. The Institute has been approved as a photography school for returned veterans. Descriptive catalog will be sent upon request; write Department 117.

PHOTO LEAGUE, 30 East 29th Street, New York City. Courses in Basic and Advanced Photography; 8 weeks, \$15. Fee in-

cludes access to darkrooms and equipment. The union of practice and theory is the important aspect of Photo League teaching methods. Write for information.

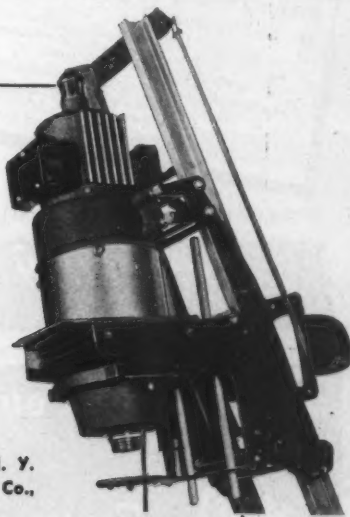
HELENE SANDERS, FRPS, FPSA, 322 West 71st Street, New York City. Portraiture, composition, lighting, posing, retouching, darkroom technique, oil coloring and pictorial photography in private lessons to advanced students in photography. Tuition \$15 a lesson, 1½ hours.

THE SCHOOL OF MODERN PHOTOGRAPHY, 136 East 57th Street, New York City 22. Supervised studio and laboratory instruction in Portrait Photography, General Commercial Photography, Color Photography. These may be taken separately or combined. All courses include fundamentals and retouching. Approved by Veterans Administration. Certificate in Photography awarded.

STUDIO SCHOOL OF PHOTOGRAPHY, 156 West 13th Street, New York City (11). Erle Buckley, Director. Pictorial photography, elementary and advanced photography—all phases—individual instruction. Student is required to do all his own work under direction of instructor. Every effort is made to make the laboratory the same as his home darkroom. All materials supplied by school. Average student usually covers course in 20 sessions which gives him the theory and practice of photography. Day and evening sessions. Tuition \$70 for 10 sessions, 2 hours each.

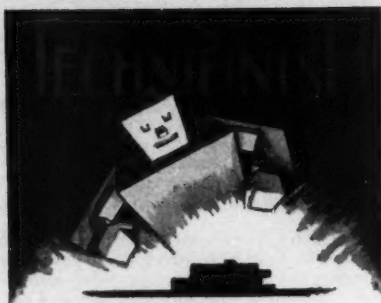
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WEST SIDE YMCA, 4 West 63rd Street, New York City. Neil Johansen, Instructor. Courses offered in all photographic subjects except 3-color separation. Dark-room technique. Participation limited to members of YMCA and members of the armed forces, both men and women. Tuition \$2 per hour for single individuals; \$1 per hour for individuals in groups.

YOUNG MEN'S HEBREW ASSOCIATION, Educational and Club Department, Lexington Avenue at 92nd Street, New York City 28. Gerda Peterich, Instructor. Courses in Elementary, Intermediate and Advanced Photography given in the evenings. Fall schedule not yet determined, however, course is given for three hours a week and consists of both darkroom and studio work. Tuition is \$15 for the term, which lasts four months, one night a week. The Course in Advanced Photography is accredited by the State Department of Education. Further information may be obtained from the Educational Director of the "Y", William Kolodney.

YWCA CENTRAL BRANCH, 2 W. 46th Street, New York City. Jane Hoops and Elsie Foley, Instructors. Beginners and intermediate photography with chief stress laid on beginners. Tuition \$8 for a 12 weeks session, 1 hour a week. The purpose of this course is to introduce beginners to photography.

KODAK CAMERA CLUB, Kodak Park, Rochester 4, New York. Courses in photography given to club members, who are also employees of the company. Information may be obtained from William Holland.

ROCHESTER INSTITUTE OF TECHNOLOGY, 65 Plymouth Avenue South, Rochester 8, New York. The Department of Photographic Technology offers two-year courses in Basic Photography and in four major curricula: Color Photography, Portrait Photography, Commercial-Illustrative Photography and Photographic Technology. Applicants are expected to be high school graduates and must take entrance examinations. Two years of 38 weeks each; year begins in September. Tuition and fees are \$304 a year.

SYRACUSE UNIVERSITY, Syracuse 10, New York. General photography. Planning to establish courses in microtechnique and medical photography, and also in criminology showing use of photography in that field.

NORTH CAROLINA

APPALACHIAN STATE COLLEGE, Boone, North Carolina. A. Antonakos, Instructor. Fundamentals of photography. Course open to all regular students and open to non-students when laboratory space is available upon payment of laboratory fee. Course primarily designed to teach and develop good laboratory technique. Laboratory fee \$5. Course 11 weeks long, 3 hours a week.

NORTH CAROLINA COLLEGE FOR NEGROES, Durham, North Carolina. Dr. L. H. Knox, Instructor. Photographic chemistry for laboratory workers. Tuition free. Course lasts 15 weeks, 8 hours a week.



All photographs on this page
by M. Kemal Cakus.

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Mr. Cakus has been assigned to bring back informative material, including pictures taken in the various types of educational and vocational school systems; farms and agricultural centers; factories and industrial plants.

The Institute is proud to have been selected for this important work—and perhaps even prouder of this letter* received from Mr. Cakus after he had finished his training:—

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OHIO NORTHERN UNIVERSITY, Ada, Ohio. D. R. Lowman, Instructor. Study of cameras, photographic materials, printing processes, etc. Class must be limited to laboratory facilities. 12 weeks, 2 hours a week.

AKRON HIGH SCHOOLS, Akron, Ohio: Buchtel High, Mr. Clifford Wertz, Instructor. Central High, Mr. Milford Terrass, Instructor. East High, Mrs. Adaline McLeland, Instructor. Garfield High, Miss Mildred Ogan, Instructor. North High, Mr. Paul Zimmerman, Instructor. West High, Mr. Vernon Culp, Instructor. Basic course in fundamentals of photography—equipment, negatives and print making by contact and projection methods.

This is a semester course offered in both Fall and Spring term in day classes only. Extra lab time is provided for any student. No tuition for Akron residents. Further information may be obtained from Ernest R. Stotler, Director of Practical Arts, 70 N. Broadway, Akron 8.

THE COMMUNITY COLLEGE, Division of Adult Education, University of Akron, Akron, Ohio. Beginning and advanced photography, Herbert B. Woodling, PSA, Instructor. Twelve classes of 1 1/2 hours each for each course; \$6.00 a semester. Advanced Course students must have knowledge of developing, printing and enlarging.

OHIO UNIVERSITY, Athens, Ohio. Dr. Emmet E. Shipman, Instructor, Miss Ruth-Marion Baruch, Assistant Instructor, of photography courses offered by the College of Fine Arts. Elementary Photography, New Photography, Photographic Processes, Practical Photography, Advanced Practical Photography, Portraiture, Commercial and Illustrative Photography, Scientific Photography. Lecture and laboratory hours. Tuition, covering full schedule of university work of 16 to 18 credit hours per semester, is \$40 per semester for Ohio residents. Approved for Veterans education. Major in photography leading to bachelor's and master's degrees. It is also possible to register as a special student, not working toward a degree, and take only desired courses. Further information from Dean Earl C. Seigfred, College of Fine Arts.

BALDWIN-WALLACE COLLEGE, Berea, Ohio. Dr. F. B. Dutton, Instructor. Photography as a Tool and Avocation. Elementary course teaches developing, printing and enlarging; attention given to depth of field and exposure. Advanced work includes densitometry, color sensitive materials and special problems. Lecture and laboratory hours. Chemistry or Physics. Tuition \$10 per credit hour; 4 hours a week for 16 weeks, 8 hours a week for 8 weeks.

UNIVERSITY OF CINCINNATI EVENING COLLEGE, Cincinnati, Ohio, John Surbaugh, Instructor. Hobby photography: darkroom instruction, developing, printing, \$15.25 tuition for resident students of hobby photography, \$18.25 non. Workshop course, \$15.00. 16 or 32 weeks, 2 hours a week. Miniature camera practice. Classes begin September 24. Information: Evening College Office.

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University Circle, Cleveland, Ohio. Principles of Photography. Professor Hodgman, Instructor. Course for day students \$30 a term, 3 credit hours. Course for evening students starting March 5, 1946, for 16 weeks, \$20, 2 credit hours. This subject is intended to meet the needs of those wishing more complete understanding of the principles and practice of photography for pleasure, education or scientific purposes.

THE CLEVELAND ART CLUB, 305 Buckeye Building, E. Fourth and Prospect, Cleveland, Ohio. Beginners Class in Photography meets Wednesday evenings; Kodachrome group meets Friday evenings; Advanced Class meets Tuesday evenings—lighting and composition, portraiture and figure. Outdoor photo classes scheduled during summer months. Instructors are George S. Nootny and Robert E. Veress. Enrollment fee is \$5.00 a year, class fee \$1.00 a night.

FENN COLLEGE, Cleveland 15, Ohio. Charles Shipman, Instructor in Photography. Theory and Practice of Photography, Camera Technique, Photographic Chemistry. Dark-room Procedure, Portraiture, Projection, use of filters, toning. Offered by Evening School; \$21.25 first semester, plus \$1 lab fee; same second semester plus \$2 lab fee. Certificate in photography given. Term is 18 weeks, 2 hours a week.

HIRAM COLLEGE, Hiram, Ohio. Dr. Donald Dooley, Instructor. Course designed for laboratory worker who will need photography as a scientific tool; also for students interested in amateur aspects.

KENT STATE UNIVERSITY, Kent, Ohio. Elementary, Advanced, Technical and non-Technical News Photography. Darkroom technique. Tuition, \$27.50 per quarter, plus lab fees of \$1 per course except color photography which is \$3. 12 weeks. 5 hours a week.

OBERLIN COLLEGE, Oberlin, Ohio. J. C. McCullough, Instructor. Brief course for Oberlin science students who have had college physics or chemistry. Course includes work with sensitometer and densitometer as well as developing, printing, enlarging, copying, lantern slide making. Shutter speed testing and exposure meter calibration. Will not accept students specializing in photography only. Tuition \$150 per term of 16 weeks (includes full college work).

MIAMI UNIVERSITY, Oxford, Ohio. John Hicks, Instructor. Elementary Photography; \$80 per semester (includes full schedule of courses). 16 weeks, 2 hours a week. Laboratory facilities.

HEIDELBERG COLLEGE, Tiffin, Ohio.
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3001-M	Lens Surface Prism.....	2.00 each
3021-M	Amici Roof Prism (3rd Grade).....	.25 each
4009-M	Heat Absorbing Glass 4" x 5".....	.35 each
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324-M	Neutral Ray Filter size 4 1/2" x 3 1/2".....	.25
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6078-M*	33	140	Uncemented	70c
6081-M*	35	53	Uncemented	70c
6082-M*	37	57	Uncemented	70c
6084-M*	41	66	Uncemented	70c
6085-M*	45	135	Uncemented	\$1.00
6086-M*	49	75	Uncemented	80c
6088-M	56	90	Uncemented	\$1.00
6111-M*	16	38	Cemented	75c
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THE UNIVERSITY OF OKLAHOMA, Norman, Oklahoma. Two courses of Composition in Photography taught by Leonard Good, Professor Art, and Fundamentals of Photography and News Photography taught by Truman Pouncey, Asst. Professor of Journalism, have been discontinued for the duration.

NORTHEASTERN STATE COLLEGE, Talequah, Oklahoma. Physics Department offers course in photography. Two lectures and four lab hours a week for 18 weeks. \$4 per semester, taken with regular college work. C. H. Guben, Instructor.

SOUTHWESTERN INSTITUTE OF TECHNOLOGY, Weatherford, Oklahoma. W. R. Fulton, Instructor. Elementary Photography offered both in summer and winter terms. Length of term is 18 weeks, 2 hours credit. \$13 per semester for full schedule of course.

OREGON

OREGON STATE COLLEGE, Corvallis, Oregon. Department of Physics offers courses in photography as follows: Photography, taught by J. C. Garman, one school year or three terms of 12 weeks each; 3 credits per term. One lecture and 2 laboratory periods a week. Includes use of camera, developing, copying, lighting; composition, carbo printing, enlarging, etc. Advanced Photography, 3 terms, 3 credits per term. Includes color photography, photomicrography, microscopic motion pictures, etc. Courses in light and optics available. Tuition is \$34.50 a term for state residents; \$50.00 additional per term for out-of-state undergraduate students. Day classes; courses may be used as part of Physics major.

UNIVERSITY OF OREGON, Eugene Oregon. Dr. W. V. Norris and J. W. Teter, Instructors. Rudiments of Photography for students interested in photography as an avocation. Course given jointly by the Physics Department and the University photographer. Tuition \$34.50 covering a total load of 5 or 6 courses. Laboratory facilities.

LINFIELD COLLEGE, McMinnville, Oregon. Prof. H. E. Hewitt, Instructor. Theory, use of camera, enlarging, printing, lantern slide making, etc. Prerequisite: high school physics or chemistry. Tuition \$240 for full college work or \$7 per credit hour if full course is not taken. 18 weeks per semester, 2 hours a week, 2 credit hours.

LEWIS and CLARK COLLEGE, 0615 S. W. Palatine Hill Road, Portland 1, Oregon. Physics Department offers a three-semester hour course in photography. This may be taken as a special registration. Tuition is \$125 per semester for 13 to 17 hours. For course taken by itself, tuition is \$10 per hour with a lab fee of \$3.00.

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WESTMINSTER COLLEGE, New Wilmington, Pennsylvania. Prof. Michael Radock, Instructor. Department of Journalism, News Photography, including darkroom technique. Classroom lectures are illustrated by slides and movie material; analysis of photographic exhibits, discussion of photographic problems. Practical application, theory, laboratory work. Tuition \$20, lab fee of \$3. Course is 18 weeks, 4 hours a week, Spring term, day classes.

UNIVERSITY OF PENNSYLVANIA, College Collateral Courses, Philadelphia, Pennsylvania. Ass't. Professor I. C. Cornog, Instructor. Course is not concerned with photography as an art, but rather with basic technical ideas and their application to photography. Work is suited to background and needs of registrants. Ordinarily offered as an evening course, 2 hours lecture and discussion per week, 2 semester-hours college credit. Tuition \$25 for 16 weeks. Course given only if there are at least 12 registrants.

YORK CAMERA CLUB, 273 W. Market St. Address correspondence 329 Liberty Court. General course in photography. Tuition \$5 plus membership in the club. Session is 10 weeks, 3 hours a week.

WASHINGTON and JEFFERSON COLLEGE, Washington, Pennsylvania. Physics Department offers Special Laboratory Measurements, 20 per cent of which is photography. No lecture hours, 3 laboratory hours a week for 16 weeks; one credit hour. Tuition is \$20 a semester; Fall term; Sophomore Physics is prerequisite. Prof. Raymond M. Bell, Instructor.

SOUTH DAKOTA

UNIVERSITY OF SOUTH DAKOTA, Vermillion, South Dakota. E. G. Trotzig, Instructor. Journalism Department offers course in News Photography. Main purpose is to train students to make photographs suitable for illustrating news stories and features. Use of Speed Graphic and necessary darkroom techniques are taught. Tuition \$35 per semester for full college course. Lab fee of \$2. Four hours a week for 18 weeks.



TENNESSEE

THE UNIVERSITY OF TENNESSEE, Knoxville, Tennessee. Photo-micrography, developing, fixing, printing, mounting, enlarging, photostating, lantern slide making. Emphasis placed on application of photography to biology. One hour class and two lab periods.

TEXAS

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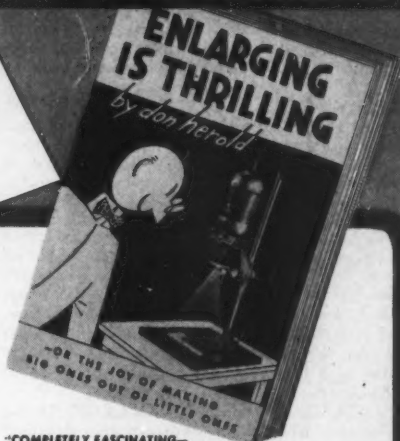
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LEGE, Alpine, Texas. Dr. Omer E. Sperry, Instructor. Elementary photography. Students provide own cameras and film, pay for paper used, etc. If separate course is taken, it is prorated on credit hour basis; total course fees are \$25 per semester of 18 weeks, 2 hours a week.

THE UNIVERSITY OF TEXAS, Austin, Texas. J. M. Kuehne, Instructor. Physics Department offers course covering elements of basic photography and a course in advanced photographic techniques. Both courses have prerequisites in Physics and Chemistry. Lab fee of \$2.00.

MARY HARDIN-BAYLOR COLLEGE, Belton, Texas. Albert A. Normand Instructor. Photography course offered with three semester hour credit. Tuition \$16 with lab fee of \$5.00.

EAST TEXAS STATE TEACHERS COLLEGE, Commerce, Texas. Two courses offered by Dr. W. W. Freeman: Photography given in Industrial Education Department; Audio-Visual Education. Each consists of a 3-semester hours lecture and 4 hours required laboratory. Both courses run 18 weeks in Fall and Spring. Cost is \$34.50 for a semester, including books and use of library and laboratory. A single course of 3 hours is \$11; two courses, \$19. No night classes.

HOCKADAY JUNIOR COLLEGE, Dallas 6, Texas. Elementary photography—practical instruction and practice, developing; making, retouching and mounting enlargements; use of practical accessories. Course is open only to full-time students at the College. Theory and practice, as well as lectures, demonstrations and discussions. Tuition is \$1,350 for boarders; \$350 for day students. (Girls only.)

SOUTHWEST PHOTO-ARTS INSTITUTE, 3408 Asbury Street, University Park, Dallas 5, Texas. S. D. Myres, Jr., M. A., Ph. D., LL. D., Director, offers individual instruction in Basic Photography, Commercial Portraiture, Retouching, Oil Coloring, and Natural Color for beginners and advanced students. Fees average 80c an hour; slightly higher for Natural Color. Fees include chemicals, rental on cameras, use of camera and dark rooms; paper, film are extra. The Institute is approved for photography study by discharged veterans. Descriptive folder on request.

TEXAS CHRISTIAN UNIVERSITY, Fort Worth, Texas. Newton Gaines, Ph. D., Instructor. Theory and Technique of Photography. Developing, printing, enlarging, darkroom. X-ray, spectrography and photomicrography available to any student interested in scientific photography. 3 semester hours.

SOUTHWESTERN UNIVERSITY, Georgetown, Texas. Photographic Composition; analysis of photographs relating to line, light, and shadows, technique and procedure. Use of photographs in advertising, industry, news, decoration. 3 lecture and 3 laboratory hours a week; 3 credit hours per course. No prerequisite.

SAM HOUSTON STATE TEACHERS' COLLEGE, Huntsville, Texas. H. W. Adamson, Instructor. Elementary photography in

summer term—enlarging, retouching, tinting, lighting, focusing, proportion, depth, lens testing. Tuition \$16.00.

PARIS JUNIOR COLLEGE, Paris, Texas. Theory and practice of exposure, developing, printing, and enlarging. Advanced photography. Eighteen weeks, 4 hours a week, terminal credit of 3 semester hours. Tuition \$10. Laboratory facilities.

PRAIRIE VIEW STATE NORMAL AND INDUSTRIAL COLLEGE, Prairie View, Tex. Fundamentals of photography. Students may enroll during regular session as special student, paying tuition fee of \$8 for 4 semester hours of credit.

UTAH

BRIGHAM YOUNG UNIVERSITY, Provo, Utah. Dr. Wayne B. Hales, Instructor. Theory and Art in Photography. Tuition for photography course \$10, or student may take full courses with photography elected. Laboratory facilities. Course offered only in Spring quarter. An advanced course in photography is given for students who offer the necessary Mathematics and Physics prerequisites. Same tuition, Spring term.

VIRGINIA

MARY WASHINGTON COLLEGE, Fredericksburg, Virginia. William L. McDermott, Instructor. Department of Fine Arts offers two courses in photography. Beginning photography includes instruction and practice in the artistic, optical and mechanical principles. Advanced photography, with emphasis on composition, lighting, portraiture, and flash photography. Lab fees are \$2 and \$3. Tuition is \$14 per course.

WASHINGTON

WESTERN WASHINGTON COLLEGE OF EDUCATION, Bellingham, Washington. Elementary Photography offered as college course or may be taken as correspondence course. Also Advanced Photography and a course in construction and use of visual aids. Two hours lecture and 4 hours lab; 3 quarter hours credit; 12 weeks. Tuition of \$13.50 per quarter covers full schedule. Regular students pay extra fee of \$1. Correspondence course is \$9.00. C. M. Rice, Instructor.

WALLA WALLA COLLEGE, College Place, Washington. Prof. Richard Lewis, Instructor. Elementary photography; developing, enlarging, mounting, photo-optics, exposure, composition. Tuition \$14.80 including lab fee. Twelve weeks, 2 hours a week.

EVERETT JUNIOR COLLEGE, 25th and Dakes Avenue, Everett, Washington. Offers classes in photography covering fundamentals of the camera, developing and printing, portraiture and negative retouching, photographic chemistry. Also classes in News and Commercial Photography, and Amateur Motion Picture Photography. The instructor is Edward Boyle.

CENTRAL WASHINGTON COLLEGE OF EDUCATION, Ellensburg, Washington. Ele-

(Continued on page 110)

WIN \$10,000 FIRST PRIZE!

CONTEST RULES

1. This contest is open to all individuals who are not professional motion picture producers. Any officer or employee of International Theatrical and Television Corp., members of their families or any of the judges are automatically excluded from entering.

2. Films can be made on any millimeter stock, except 35mm; they may be in black and white or color; they may be silent or sound. No films with sound on discs will be accepted, and no films, or any part thereof, for which monetary compensation has already been given.

3. Films of any length, that meet the other requirements will be accepted.

4. Films falling into any of the following categories will be acceptable: dramatic, story, or entertainment films; travel films; nature study films; record films; religious films; educational and scientific films; documentary films; historical films; family films; industrial films, etc.

5. An individual contestant may submit as many separate entries as desired. Each entry, however, must be accompanied by an individual entry blank or reasonable facsimile thereof, and each film must bear the name and address of the contestant on both the film container and on the film itself.

6. All entries in the contest must be forwarded to International Theatrical and Television Corp., 25 West 45 Street, New York 19, New York by prepaid parcel post express or messenger. I.T.&T. will return to the contestant, all, except the eleven prize winning films, as soon after the contest judging as is possible by prepaid express. All entry blanks must be sent by First Class mail.

7. All contestants entering films from outside the United States must pay duty, forwarding charges, and taxes, if any, in sending and receiving of film.

8. Although every reasonable care will be exercised by I.T.&T. and its agents, in the handling of contest films while in the company possession, I.T.&T. cannot accept responsibility for the loss of, or damage to, films submitted.

9. The films winning the eleven prizes shall automatically become the property of International Theatrical and Television Corp., and I.T.&T. by the payment of \$10,000 for the first prize and royalties for the following ten prizes, which royalties shall be 50% of the net sales revenue less cost of prints, censorship, music, sound, and recording royalties, take over all further rights to the picture.

I.T.&T. reserves the right to stop distribution of these films at the end of two years from the date of contest closing. I.T.&T. further reserves the right to constitute an agreement on the part of the contestant to abide by these contest rules and regulations. It shall further be understood by the contestant that the decision of the judges is final and that neither I.T.&T. or the judges can undertake to engage in any dispute regarding this decision.

11. The contest shall be open on July 1, 1945 and shall be closed on July 1, 1946. All entries must be received in the office of International Theatrical and Television Corp. on or before July 1, 1946.

10 BIG ADDITIONAL PRIZES

For Best Amateur Motion Picture On Any Subject

Attention all amateur motion picture producers! Here is the chance you've always wanted. Now your own motion picture can earn you big money — and all the glory that goes with being a producer of a commercially distributed film.

Anyone may enter. There's nothing to buy and nothing to sell. Your production may be on any subject — any length!

Why this contest? To stimulate and help develop better amateur motion picture production!

Ten internationally famous judges will select the winners. Names of judges will be announced shortly.

Get started now! The contest will close July 1, 1946, and all entries must be received prior to that date. Write I.T.&T. Contest Editor for complete details and your entry blank today.



INTERNATIONAL THEATRICAL & TELEVISION CORP.
A Force For Better Living Through 16 mm
 25 West 45th Street • New York 19, N. Y.
 Branch Offices Throughout The United States

I.T.&T., Contest Director
 25 West 45th Street, New York 19, N. Y.

Please send me complete details and entry blank for your big \$10,000 Amateur Motion Picture Contest.

NAME..... ADDRESS.....

Up in the Air Again

PHOTOGRAPHS BY
GEORGE R. HOXIE

HERE'S a memo for air-minded camera fans. Now you may take the camera along on that next trip by air and try your hand at recording the landscape below. Commercial transports, their personnel, passengers, and airport activities in general lend themselves to pictorial expression. The forbidding signs "NO CAMERAS" erected four years ago around our favorite photographic haunts are rapidly disappearing. The Editors of MINIGAM would like to see pictures from readers dealing with "Aviation" as a theme for a forthcoming portfolio of prints. In our next issue, Ralph Samuels tells how he makes his dramatic aerial photographs.



A PHOTOGRAPHER

at work in the clean air-conditioned interior of a Douglas DC-3 is usually looked upon by the rest of the bemused passengers as some sort of aerial floor show. In the picture at upper left, TWA Hostess Karol Enstad is passing out reading material to a fellow traveler. Meals aloft help to break up flight routine and Miss Enstad is shown at left on her way from the "kitchen" with some fried chicken for unsuspecting Johnnie Burke of Minneapolis.

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MILITARY FIELD AT ALBUQUERQUE, NEW MEXICO

STAR LIGHT STAR BRIGHT

Life Magazine's famous experimental cameraman tells how
to create special night effects with a metal fly screen.

TEXT AND ILLUSTRATIONS BY ANDREAS FEININGER

PHOTOGRAPHY is based upon symbols. Colors are symbolized by gray-tones, space is symbolized by perspective (the apparent converging of parallel lines, and the ratio according to which objects apparently diminish in size with increasing distance from the camera), and motion can be symbolized by blur. Only light has no symbol of its own in photography, but has to be represented by white. But actually light always has a radiant quality not found in any of the colors, well

worthy of its own particular symbol—one that will make it appear different from mere "white" in a photograph.

The first time I realized that there might be a solution to this problem was in the late twenties. I had taken pictures of city streets at night on glass plates with insufficient anti-halo backing, and my street lights came out encircled by a beautiful halo. For the first time, I had neither a shapeless white blob for the rendering of a street lamp, nor a precise white pinprick; but a symbolic form that instantly suggested "radiant light"—a halo! The same form of a halo that artists often like to draw around the image of a burning candle! Yet this halo had been created in my picture with 100% photographic means, without any kind of manual interference, solely through making use of the peculiarity of a special kind of negative material. I felt elated and happy, and as long as I could get these plates I used this phenomenon to create the impression of radiant light shining out of the night.

When production of this negative material was discontinued I had to look for

HALO on the Christmas tree at left was created by the use of glass plates. Present-day emulsions plus two wire screen filters were used in Feininger's interpretation of Broad Street, opposite. Readers may wish to compare this with a similar shot by Hugo Rudinger published on page 43 of the February 1945, *MINICAM*.



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other means to symbolize radiant light in a photograph. I experimented with different types of film, found some that gave acceptable results in certain cases, as sun-glitter on water, but not one that gave me anything like the halo-effect of my old glass plates. I used soft-focus devices and Duto-lenses, and I heartily disliked the way they softened the whole picture into mush. Finally, I was about to give up temporarily when I happened to look at some street lights through an ordinary fly-screen, and noticed how this screen transformed every single dot of light into a tiny four-pointed star. The next day I got several samples of *fly-screen metal cloth*, some of them coarse, others very fine, and started experimenting with them. I cut them into round discs to fit into filter holders, slipped them on the lens and photographed different kinds of lights through them, using them either single, or in pairs with the wires crossed at a 45° angle.

Here is what I found out: A single "filter" made of metal cloth transforms any source of strong light into a four-pointed star, while two screens used together, when rotated against each other one-eighth of a turn, will produce eight-pointed stars. Weak lights, like lighted windows, are not noticeable affected. If single screens are used, the wire mesh should be medium-fine; very fine mesh produces an all-over unsharpness of the picture, while too coarse a screen gives stars that are too large and ugly. Double screens for production of eight-pointed stars should have a coarser mesh than single screens, because they cut off more light, and if too fine a wire mesh is being used, the result will be a general blurredness of the picture.

In all cases, exposure time should be prolonged by about one-third. Shorter exposure will produce only very small stars and may result in under-exposure of the photograph, while with prolonged exposure time the stars will grow on and on and finally reach across the entire film, crossing each other and messing up the picture. If the wire mesh has the right

size, the sharpness of the picture will not be affected objectionably, even if definition is not quite as good as it was without a screen. However, since this technique will be used almost exclusively for night photographs, where composition of big masses and accentuation of the lights is always more important than abundance of fine detail, slight loss of definition is rarely objectionable. The accompanying photographs will give an indication of the kind of light-effect these metal filters produce.

Doubtless, photographers occasionally have recorded pictures of street lights in star-form before, without using any kind of screen. In such cases, the star pattern is produced by light reflected from the leaves of the diaphragm, and the stars are small and many-pointed, the number of points corresponding with the number of leaves of the diaphragm. This phenomenon is typical only for certain lenses (for example the *f*:6.3 Zeiss Tessar), while others are completely free from it (for instance the Schneider Angulon wide-angle lenses). Stars of this type appear only if the lens is stopped down considerably; they are difficult to control and they will always be relatively small.

All star-shaped light symbols have a certain aggressive quality, thanks to the sharpness of their points. They convey very well the idea of brilliant electric light, the hard glitter of city streets at night, but they are hardly suitable for depicting a softer mood. Here, the old-fashioned glass plates and their haloes would have been ideal, their soft round shapes suggesting the mildness of gas light, of Chinese lanterns, of big white globes radiating a softly diffused light. Ever since these plates disappeared from the market I have tried to find other ways of getting a similar effect, but so far without much success. The closest resemblance to haloes I have obtained by deliberately throwing a picture out of focus, which, of course, can be done only in a few selected instances without ruining the entire photograph. The idea suggested itself to me because of my near-sightedness. Looking at any kind of light

(Continued on page 104)

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With Conde-Nast in Darkest Africa



TEXT AND ILLUSTRATIONS BY MAURICE FRINK



In Africa, too, the war sets styles. This airplane hat is used in Liberian native ceremonial dances.

THREE years ago (November, 1942) MINICAM told how I went from college to a job with Condè Nast Publications. It was quite a jump, from photographing co-eds to Powers models. But my career as a fashion photographer didn't last long. After two months I quit *Vogue* studios and did a bigger jump than the one from DePaw University in Greencastle, Indiana, to New York City. An overseas assignment with the Office of War Information took me to the Gold Coast, where I photographed African natives in their bush villages; to north Africa where the Cashbah mixed Orient and Occident in intriguing pictures; and on to Italy until the end of Fascism and the celebration of V-E Day brought me back to the States.



DESOLATION HAS A TOUCH OF BALI

There was a war going on in the Gold Coast, a British colony on the underside of the western bulge of Africa, when I arrived in December of 1942, but that was a battle of supply—tools of war, planes and men coming through the American air base near the city of Accra.

Stepping off the boat in Lagos, Nigeria, my last stop before Accra, I felt that I was leaving civilization behind and entering the mysteries of the Dark Continent. It was dark, too, since the sun had set a few minutes before our launch put us ashore.

Once on land, where the fringe of

tropical trees hid all but the coastline, I took a few steps and stopped to look up in the treetops for any signs of animal life. "Who knows," I thought to myself, "when I will next see some sign of civilization?"

The question was answered brutally as the man behind me pulled my arm with a sudden jerk that spun me around and pulled me out of the way of a jeep that roared down the highway where I had been standing.

That was my first impression of Africa, and the impression that I took away with me—a land of contrasts between jungle

life and modern civilization. Up-to-date cities side by side with bush villages. Cultured Europeans and educated Africans mixing with gaudily dressed natives speaking only languages of the interior.

This is no photographer's paradise, this West Coast country, but it is full of interesting subjects. The dense jungles and the tall trees shading the villages are not conducive to good pictures, but the tropical sun gives a softer light than one expects on first arriving there. The people do not "pose" or dress in gay costumes. They are, however, for the most part familiar with cameras: they show no fear, do not attempt to hide their faces, and only the little children gather at your heels and clamor, "Photo, photo."

I felt that what I saw in these bush villages was authentic and real, with no added glamour. Too often, in fact, the villages are completely barren of any photographic interest aside from the individual natives, since the tribes away from civilized towns seem to have almost no implements or handicraft of any kind. It is only in the interior, reached by crude roads or only on foot, that the real native art is found.

And when tired of African civilization, or African bush life, for a view of America one had only to go to the American air base to hear American slang rather than pidgin English, eat American steaks rather than paw-paws and lean African chicken, see American movies rather than tribal dances, and hear American jazz instead of talking drums that beat in throbbing variations the news of the world from tribe to tribe the length of Africa. Here, too, rather than native birds, were American transport planes and bombers, flying on to North Africa or over the Hump to China. And, too, American and British girls, nurses and Red Cross workers, rather than the ornately dressed or half-dressed African women who obtain their full beauty at the age of twelve and are "old women" by the end of their teens. No bobby-soxers these.

AFTER six months of working with the American Army and the British Ministry of Information, I was assigned to Algiers, and I left the Gold Coast, anxious, like all green horns, to get closer to the war.

After receiving inoculations, and waiting for plane passage, I climbed aboard a C-47 and began the three-day flight to North Africa. On the afternoon of the second day we stopped at a little flying field in the middle of the Sahara Desert, one of a string of refueling stations throughout the flight. I was taking pictures through the window of the plane, as we came down from 8,000 feet. It was cold up there, and I had a sleeping bag wrapped around my shoulders, in addition to a heavy jacket. When the plane stopped taxiing I threw off the sleeping bag and stepped to the door. The door swung open and the fellow behind me pushed me out. As I jumped the five feet to the ground, something hit me hard. I felt as though I had jumped into a furnace. My knees buckled and my eyes were forced shut by the strong, dry wind that carried bits of blinding dust. When I got to my feet again, and forced my eyes open, I realized that the West Coast, which had been pretty warm, was semi-frigid compared to this.

It was 130 in the shade, and no shade. We stayed there 16 hours. Occasionally I thought about pictures, but the heat made it impossible to move, and I excused myself with the thought that desert dust would clog the shutter mechanism of my camera. I took no pictures of the Sahara Desert.

I arrived in Algiers in July of '43. It is a beautiful, white city, built on a series of hills overlooking the harbor, and clean and lovely compared to the black huts, crude sanitation and dark jungles of West Africa.

I thought I would like it very much, but I had not counted on a headquarters city. Allied Force Headquarters dominated Algiers, and AFHQ meant hundreds of soldiers and officers, red tape by the

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VANITY FAIR



THE NEW JU-JU



IN ITALY, MAURICE FRINK SEEKS OUT A STRANGE IRONY

mile, the few places of entertainment in the city jammed with troops and such French civilians as could crowd in. So far as companionship was concerned, all hopes were shattered when I sat down at a table in the Aletti Hotel and discovered that the beautiful French girls would not condescend to have so much as a drink with you unless you showed them a thousand franc note, and while there isn't a great deal to spend your money on overseas, twenty dollars is a pretty steep amount to pay for a drinking companion.

There was plenty of work to do. I was in the Pictorial Division of the Psychological Warfare Branch, and, besides tak-

ing photographs, was printing a series of picture posters of the war for distribution in occupied Italy.

THE main part of Algiers is a modern city that compares favorably in many ways with most United States cities. The buildings are light colored for the most part, the architecture is largely designed to conform with what a North African—almost Continental—city should be. And in the native quarter, the modern buildings blend gradually into the Casbah, with its narrow streets and miles of steps filled with Arab women with white robes and masked faces, and Arab men in baggy



MOTHER AND CHILD

trousers and turbans. A city within a city, the Casbah shows none of war's effects. There, as in the Gold Coast, I found the Rolleiflex the best camera to use, because I could set it casually, at waist level, and then look "uninterested" and snap the

shutter, whereas with my Contax at eye level, I became conspicuous as a camera man, and the natives would either "pose" or turn away.

Six months of Algiers was more than

(Continued on page 114)

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KEEPING UP MORALE ALONG THE GOLD COAST



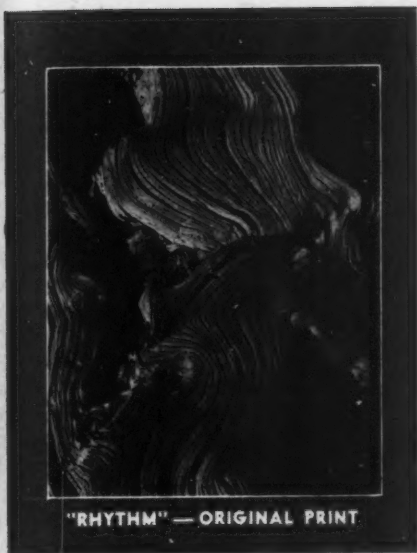
Rhythm IN DESIGN

BY GRANT DUGGINS, A. P. S. A.

SO, you're a good photographic technician with an alert imagination. You want to tackle something different. Photographic designs have proved fascinating for me because there are unlimited possibilities in just one simple picture. One of the negatives in your file may be just the thing, or you may want to hunt for a pattern picture this summer, one with definite flowing lines, a sharp rendition of texture with complete tonal range. You'll be surprised with the great number of exciting patterns you can create by cutting, duplicating, reversing, and then piecing together the matching patterns.

Notice the print on the opposite page—"Rhythm." It is a very old piece of wood that attracted my eye while visiting a grove of Sequoia Gigantia. The log was partly in shadow, so, needing a more suitable angle, I finally dislodged my prize from the position it had occupied for centuries. In bright sunlight the shadows brought out nature's erosion and I was sure I could get a picture worthy of any back-breaking effort.

The exposure was f:45 on EK Super XX Film, and a 3¼x4¼ Popular Pressman camera with a 7-inch Zeiss Tessar lens was used. The negative contains good



"RHYTHM" — ORIGINAL PRINT

detail in the shadows, but the shadowed areas are kept purposely dark in the print to accentuate its flowing rhythm.

One evening recently while looking through negatives in a search for picture-making possibilities, now that picture-taking trips must be few and far between, I came upon the "Rhythm" negative which was exposed a couple of years ago, and decided to play around with it. Then began a truly interesting evening. With the negative in the enlarger I adjusted the easel this way and that, hunting for a portion that could be reversed and repeated and joined together. A photograph of this one section led us on, resulting in the designs shown on these two pages.

Four pictures were made for each design, two straight and two reversed. The time of printing was the same for each print and they were developed in sets of four, two straight and two reversed. Each set was clipped on different corners to keep the sets separate through the balance of the processing. The paper must be used with the grain running the same way so it will shrink or stretch uniformly and dry to the same size. This will make the flowing lines of the design meet and

(Continued on page 120)



Portraits in Color

BY GEORGIA ENGELHARD

COLOR PORTRAITS are the coming thing, and the photographer who learns to master all color materials now, will have the jump on his fellows when new, improved color film and materials are available.

Basically, color technique is no different from black and white technique — except that it's quite a bit tougher. Since no dodging or local control can be exercised on the positives, color shooting demands more careful planning and checking. Color values must be absolutely correct. A slightly under-exposed or over-exposed negative in monochrome can be rectified by a choice of printing paper, but such an error in color means a botched job. The final result is worth all the added headaches and extra work, for there is no substitute for a fine sparkling color portrait with its living flesh tones and glowing textures.

A knowledge of painting and art is useful in attempting color portraits. A junket to the local museum will reveal how the old masters related backgrounds to the personality of the sitter, and what color combinations they employed in order to express the model's character. But there are no hard and fast rules. While the classical masters are the accepted standard, there is no reason why you should not break with them as Matisse and Van Gogh did, if you feel that an arbitrary use of color serves your purpose better. Ernest Blumenfeld, the noted French photographer, is an example of the rule-breaker in color photography: in the middle of an exposure, he deliberately jiggles his camera to obtain an unusual diffusion of color.

For color work, practically any type of camera will do, but a view camera with ground glass, long bellows extension,

swings and productive of larger negatives is preferable. Any anastigmat lens will serve provided it is color corrected. Your shutter must be a really accurate one. As color film is slow and demands relatively long exposures, a tripod is a "must". Film holders should be dust free and light tight. An exposure meter is essential as exposures must be calculated exactly. For this reason a color temperature meter to check the temperature of illumination is helpful.

If you are already set up to do black and white portraits, which implies that you own an adequate set of lights, you need make no further investments in this direction. Johnson vent lights, booms and spots need only the insertion of K-3200 bulbs to make them serve in this new venture. Kodachrome Professional film Type B and Ansco Color Tungsten are both adjusted to the color temperature of these bulbs. If you wish to use flash, number 22 flash bulbs with 2A correction filter on the lens will also yield good results. Although flash is harder to control accurately, it has the advantage of much shorter exposures which are advisable when trying to catch the fleeting expressions of children or when dealing with nervous and self-conscious adults. If prints are to be made, it is well to include the Eastman grey scale and color spots in some non-essential corner of the picture as a guide to the printer.

The best type of room in which to work is one whose walls are neutral in tone — light grey or cream, white or black — as pigmented walls or the presence of colored drapes may give a kick-back and destroy accuracy of color renditions.

There is a popular misconception that lighting for color must be absolutely flat. This may be true if you are shoot-

ing a detailed landscape or panorama, but in portraiture the aim is to achieve plasticity and three-dimensional feeling of form. For this reason, modelled lighting is desired. You can use your regular source light with fill-ins and hair lights and all the rest, but all must be very carefully balanced. The fill-ins must be placed so that they fully illuminate and open up shadow areas which would otherwise register black and colorless; the hair lights must be neither too close nor too intense so that it does not completely bleach out the top of the head. It is often a good practice to use a low auxiliary light to avoid a deep shadow under the chin. Diffused rather than raw light is preferable, and beware of overly strong spot lights, as they tend to increase color kick-backs. The contrasty lighting so often used in monochromatic portraits—particularly in glamour shots with enormous nose shadows sweeping the cheek and part of the face thrown into darkness—should not be used in color portraiture because Kodachrome does not register detail in heavy shadow areas.

Interesting effects can be gained by using colored gelatin filters over the lights, and many a milky and pallid complexion can be made to glow by the use of a rosy tinted filter. But be sure that these are not too intense in color unless you are trying for really bizarre effects.

Because of the necessity for this careful balance of lights and their very accurate adjustment, I would suggest that you use an assistant to move and adjust them for you; you will find this will not only be a great timesaver, but will result in far better pictures. I think you will find it advisable to take three exposures on each pose to insure one really good one, and when using multiple flash it is a good idea to make pre-sitting tests on some static colored objects, such as skeins of yarn, to determine the exact exposure and lamp-to-subject distance. All this will cut down the possibilities of error and may save you many a re-shooting.

With adults with skin blemishes and age lines, make-up is necessary if you wish to

produce a really pleasing portrait. This is especially true of women, whereas men with their more rugged features and skin textures generally do not require it. In black and white, skin or facial defects can be removed by retouching, but not so in color: for the average person, retouching to any great extent is extremely difficult on Ansco Color and Kodachrome, and only a certain amount of it can be done on Carbrós. Max Factor's Pancake Make-up is excellent for this purpose. Keep away from regular street make-up. Although perfectly natural to the eye, it may register red on transparencies. Sometimes a dark make-up is advisable: for example, if your subject is wearing a suit of navy blue which you wish to register as such and not as black, a dark make-up should be applied in order to avoid burning up the skin tones and to give a truer all-round color rendition.

As a general rule in color portraiture, it seems to be the opinion of well-known artists that the glaring and often garish colors used in advertising shots should be avoided and that the portraits should be presented in subtler, richer color harmonies, which is the way in which the Old Masters of painting did their work. But, as I said before, there is nothing to keep you from experimenting if you feel the subject demands stronger and more exotic combinations: after all, Van Gogh and Matisse often used brilliant hot color for backgrounds and costumes—reds, yellows and violet. One of the most interesting color shots that I have seen of late was one by Alan Fontaine which was a study in various shades of red: quite iconoclastic in method, but it produced a striking effect.

It is a great help even in black and white portraiture to have some knowledge of character, temperament and characteristics of the sitter, but it is even more important in this medium in which we are going to use the emotional value of color to interpret as well as to portray. "Color states, and black and white suggests" says Paul Outerbridge, an outstanding color

portraitist. Keep this fact uppermost in your mind at all times. It is the cardinal difference between the two mediums. Pose, expression, mood, lighting, clothes and background should all tie together to express the personality of the sitter. All must combine to create the utmost unity and harmony which can easily be destroyed by the selection of unsuitable colors for costumes and backdrop. Make color work for you not necessarily to flatter your subject, but to make a more complete and convincing portrait—make it interpret color and mood. Also consider the flesh and hair values of your model in relationship to background and clothes, for a short study of color will reveal that it is often enhanced by placing it next to its complimentary. For example, blonde hair is more apt to appear to advantage against a blue setting rather than a red one.

As to clothes, the simpler the better. Avoid spotty or flowered or patterned dresses, because this distracts the attention from the sitter. Avoid fussy or bizarre costumes, for you are taking a portrait not a fashion shot. Also avoid white dresses which pick up flesh tones and which are too highly reflective. Your sitter should wear something which harmonizes with her character. Pastel colors are most suitable for children. Men's plain and rather colorless business suits present a problem, but a note of color may be introduced by having them wear colored shirts and ties. If possible, avoid white collars, which may throw back reflections. Clothes should be subordinate and the emphasis should be on character rather than on fashion.

Backgrounds are also of the greatest importance in making the picture an integrated whole. Unless you are taking a full length or three-quarter length figure, avoid the use of a room set-up. Head and shoulders are much more effective against a plain backdrop such as a flat colored piece of wall paper or textile. Drapes are hard to handle because of the harsh and distracting shadows created by their folds. Make your backdrop color help in the interpretation of your subject:

gay, light shades for children, stronger or more somber ones for adults. Be sure that the background is lighted independently from the sitter and keep the latter at least six feet in front of it in order to avoid color kick-backs. As with the choice of costume, the background should not jump out at you or detract from the subject interest. For this reason, blue, which is a cold recessive color, is a popular shade. Red, which is hot, dominant and exciting, is usually better as a color note rather than as a background, unless it tends toward the more subdued tints of maroon. Colored lights can also be employed to give interesting gradations and varied effects. Naturally, your selection will depend on your aesthetic appreciation and knowledge of the work which color can do for you.

As an example of a color portrait shooting, let me tell you how Ralph Warren, of this city, and I have made several studies in Kodachrome, of the painter, Georgia O'Keefe. I have known her for many years, so that I had a pretty definite idea of the kind of picture we should take. I wanted to express the feeling that both she and her painting convey to me; one of great simplicity, dignity and integrity. When she suggested she wear a green dress, I told her I preferred the black cape which is so characteristic of her, and which, though having no color value, would serve to give big simple masses and flowing lines. She also suggested that we photograph her against one of her vivid paintings, an idea which I rejected because I felt that the simpler and less complicated the set-up the more striking it would be, and the more integrated and compact would be our presentation. Having modelled for her photographer husband, Alfred Stieglitz, for many years she was not difficult to pose. What we wanted was a strong portrait rather than a glamorized one. Therefore, we avoided the use of make-up, which would have detracted from the expressiveness of her lean, intelligent face, and which also would have been most uncharacteristic.



NILS JOHANSSON

We used a standard modelling light with a fill-in, and on a couple of the shots a back light to drip over slightly on that part of the face farthest from the camera, giving extra plasticity to the picture. We used an over-all background light as the spot type of lighting is for glamour shots rather than for one of a severely classical nature. We used three different background colors, the three primary elemental colors that have ap-

peared so often in Miss O'Keefe's painting and which also express her direct and forceful character. We deliberately "broke the rules" in two cases by using red and yellow, both warm shades, as the background for the cold and sombre black. Red expresses the passionate feeling that surges through her work, and it was also a color that she used to a great extent in her early water colors and oils. Yellow is the color of sunlight, of the New Mexico



GINGER ROGERS

MARTY CRAIL — VANGUARD FILMS, INC.

desert that she loves, and the color of the autumn leaves and the daffodils of Spring which have glowingly adorned many of her canvasses.

The shooting took well over two hours and we made three exposures at half stop differences; two of them were inevitably wrong.

POSE, expression, mood, lighting, clothes and background should all help to express the personality of the sitter. Georgia O'Keeffe, painter-wife of Alfred Stieglitz was particularly pleased with this background, a rich color which is often seen in her canvasses.

GEORGIA O'KEEFE

GEORGIA ENGELHARD



A LONG LOOK AT THE JAP



★ The crisp definition and extraordinary brilliance of Curtis Plastic Optics as used in vital aviation optical equipment designed, developed and manufactured for the United States Navy, will some day soon be directed toward civilian ground photography.

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LENS COATING

A BOON
BUT NOT
A MIRACLE

BY BOB FRAZER AND LARS MOEN

DUE to a lack of adequate information, the idea has become current in some photographic circles that lens coating will increase speed fantastically, eliminate surface reflections, change the baby and cure hives! Some of the exaggerated claims made for lens coating have done considerable harm, since photographers who have had their lenses treated have been disappointed — merely because they expected the impossible.

The merits and virtues of lens coating are so solid that they need no exaggeration. For the photographer to whom quality is important, lens coating is worth while, make no mistake about that. For the amateur with a two-dollar box camera and a simple meniscus lens, coating has nothing whatever to offer.

Before plunging into the details, suppose we list the basic facts:

1. Lens coating *will* increase the speed

A CORNER of the Acra Instrument laboratory in Hollywood. The transparent bell jar is used for lens coating; the other jars are for mirrors and prisms to be given reflective coatings. Bob Frazer may be seen controlling the thickness of the lens coatings by watching the color of the film produced by interference.



of most lenses about half a stop; it *will* increase the crispness and contrast of the image; it *will* subdue troublesome ghost and flare.

2. Lens coating *will not* replace the Pola screen, the lens shade and the non-halation film coating.

Coating of optical systems will eliminate about 75% of reflection losses. We know that glass does not transmit light rays to the extent of 100%. For example, light entering a typical camera lens may be reduced to 70% or less by the time it reaches the film plane. This fact has been known for many years, but the method by which this inefficiency of light transmission may be reduced is comparatively new. How is this done? By coating the lens surfaces in order to reduce light reflection, thus improving ability of the lens to transmit light.

Still in the experimental stages before the war, lens coating was rated high in importance for the development of more efficient lenses for use in binoculars, aerial cameras and optics for the submarine periscope. Coated lenses are now used by the military so extensively that many thousands of photographers in the armed forces accept coated lenses as a normal item.

Thanks to the demand created by the war, lens coating is now available to the general public, so that existing equipment can be modernized at moderate cost. One of the firms doing this is Acra Instruments, of Hollywood.

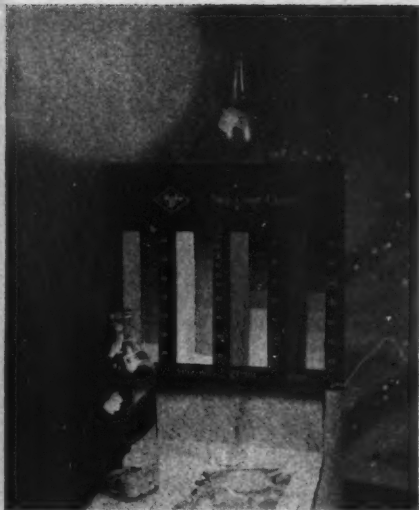
Almost since the origin of optics, scientists have been aware of the fact that lens surfaces reflect a portion of incident light. Reflection of light by the two polished surfaces of a single lens element is between 8 and 14 per cent of the incident light, (depending on the refractive index of which the lens is made), thus reducing the amount of light passing through. What happens, in terms of reduced efficiency, is that an uncoated camera lens composed of four separated elements, a Baltar for example, will transmit only 60—70 per cent of the light as a flare spot, or *more commonly*, as a diffuse fogging of the film, which influences the final photographic results by reducing con-

trast, and, in addition, where color film is used, by affecting purity of color. Light striking the surface of a lens is reflected back toward the surfaces in front of it, where a portion of the stray light is again reflected toward the film. Since the surfaces are curved, this does not take place at one fixed point, but tends to "bounce" the light around so that the unwanted light rays may appear on a critical portion of picture area of the film. A bright light at one side of the field may even register as a ghost image in some other portion of the picture.

Methods of lens coating recently developed, have greatly reduced surface reflections and increased light transmission by applying on the lens surfaces, a transparent film of such thickness that constructive interference takes place between most of the light rays reflected at the air-film and film-glass surfaces.

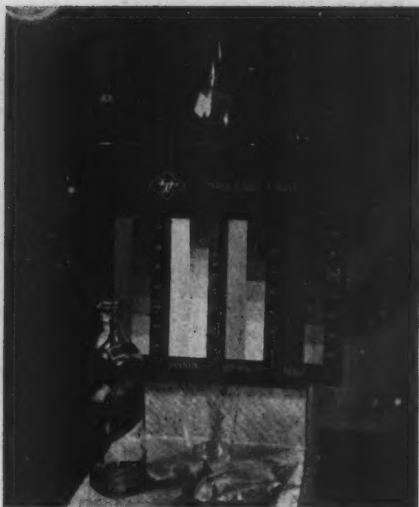
There are four methods by which reflectance of glass may be reduced, however, the physical process involving the evaporation of fluoride compounds in high vacuum is the most effective and is conducive to readily controlled and efficient results.

The process of coating a custom lens involves a careful disassembly of all accessible elements, and scrupulous cleaning to remove all traces of dirt and grease. These elements are then placed in a special fixture and a bell-shaped glass jar inverted over it. A high vacuum is then created, exhausting the air so that less than one part in a hundred million remains. In this high vacuum, molecules of fluoride compounds are shot from an intensely heated crucible, impinging on the surface of the glass to gradually build up a film about six millionths of an inch in thickness. During this process a change of hues is noted. These hues are a measure of efficiency of this film. When a dim brownish purple color is reached, the film has developed to its optimum thickness for most applications, and the desposition of the fluoride is halted. The lenses are then inverted, and the procedure is repeated so that both sides will be coated. These lenses are then removed and carefully



STEP COLOR CHART photographed with an uncoated Cooke Aviar lens. Normal lighting was used, plus a 500-watt spotlight pointed directly into the lens, creating an overall flare.

EVELEN CEDER, Hollywood showgirl, photographed directly against the light with an uncoated B & L Process lens. Flare flattens pix.



AN IDENTICAL EXPOSURE made after the same lens had been coated. Flare is now confined to a negligible area in the immediate vicinity of the spotlight—contrast is improved.

SAME GIRL—same camera—same exposure—but with a coated B & L Process lens. Flare has disappeared, giving better print quality.





UNCOATED LENS, no Pola screen. General flare reduces the overall contrast sharply. Surface reflection from the glass table top makes the magazine under it invisible.



UNCOATED LENS, with Pola screen. The Pola screen removes much of the surface reflection from the glass, making it possible to see the magazines under it, but flare is still evident.

THESE SHOTS were set up to illustrate the distinction between the effect of lens coating in reducing overall flare, and the effect of the Pola screen in reducing surface reflection from specific objects. Photos of Ronnie Goodman, Hollywood model, made at Dorlan Studio by Lars Moen. All negatives developed together for identical time; prints made on same grade of paper and given identical development. Dupont Superior 1 Film; Varigam paper with No. 7 filter.

COATED LENS, no Pola screen. The flare is gone and the whole picture has normal brilliance, but the surface reflection from the glass tabletop still hides visibility through it.

COATED LENS, with Pola screen. The lens coating kills the flare, and the Pola screen greatly reduces the surface reflection from the glass, revealing below a copy of—MINICAM!



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Projection lenses, as well as glass for projection booth ports, are being treated for the major motion picture theatres because of the increased light transmission and crisper images which result. In addition, the screen appearance of color films is markedly improved. Another field, not to be overlooked, is the coating of filters and diffusion discs, which naturally cut down the amount of light reaching the camera lens. Coated filters will admit 7 to 10 per cent more light than uncoated filters. This may not seem important, but nonetheless, an uncoated filter will partially nullify the improvement of a coated lens.

Compensation for increased light transmission, in the case of coated camera lenses is, of course, essential, especially where transmission is increased as much as 30 to 40 per cent, which in practice means an increase of about half a stop. This is most conveniently done, not by recalibrating the f stops of the lens, but by adjusting the emulsion speed rating of the film used in the camera. In this way it is unnecessary to go into involved calculations each time an exposure is made.

There are fragile coatings on the market which will not withstand cleaning. It is claimed these soft coatings are slightly more efficient; however, present refinements in technique permit the application of an efficient coating which is permanent when reasonable care is observed. A recommended procedure in the cleaning of coated surface is to use an approved lens cleaner containing organic solvents and a good quality long fibre cotton.

Some little confusion has arisen regarding the difference between the effect of lens coating and the effect of a Pola screen or polarizing plate. Actually, the two are quite different. An uncoated lens takes a portion of the bright light from one part of a picture and scatters it into another part, where it is not wanted.

Coating keeps each light ray in its proper and wanted place in the image. The Pola screen removes rays which are polarized in a certain plane, and if an unwanted bit of reflection or glare in the subject is polarized (because we are at a certain critical angle to it), a Pola screen will remove it. If flare in a picture is caused by a source of polarized light, a Pola screen will remove it; otherwise not. Lens coating is equally effective on polarized and unpolarized light.

The shot of the girl with the pigtails was made as an illustration of the simple contre-jour shot, made directly against the sun, which amateurs often do unwittingly and professionals deliberately.

The shot of the Agfa Step Color Chart and glassware was made under even more rigorous conditions, since the same lens was used, before and after coating. The set-up was lighted normally, then the spotlight was focused directly on the camera lens, with no lens shade. The negatives were given identical exposure, development and printing.

Although the illustrations were made without a lens shade, the use of this accessory is still advisable, even after coating. Coating reduces flare enormously but a small percentage still gets through under extreme circumstances, and the use of a lens shade is good insurance.

The same is true of backed plates and film with a non-halation coating. This prevents light scatter or flare within the emulsion in very bright areas, an effect against which lens coating, Pola screens and lens shades are powerless.

In passing, it should be mentioned that enlarger lenses can be coated with considerable improvement. In fact, to get the full benefits, both the camera which takes the picture and the enlarger which prints it should be flare-proofed by suitable coating. This will be of benefit in the case of black-and-white copies of documents, printed matter, and the like.

Thus each item, each new step of progress, tames one more troublesome condition, and the wise photographer will avail himself of all of them.

• GOOD LIGHTING *Simplified*

BY EDWARD B. NOEL A. P. S. A.

BETTER pictures is the goal of all of us. The amateur sees the professional using high-grade equipment and thinks: "If I only had a more expensive camera I could take good pictures, too." But he has missed the point—what he needs, in addition to creative ability, is not the professional's camera, but his knowledge of lighting. Few amateurs realize the importance of lighting, while the professional has learned by experience that if the quality isn't there in the lighting of the subject, no camera, film or paper can produce a quality print. Given good lighting, fine pictures can be made even with inexpensive equipment.

The Hollywood cameraman does not draw his large salary because he knows how to load and focus his camera, but primarily because he can light the subject attractively. He is a lighting specialist. The well-paid commercial illustrator achieves his result with lighting effects. It is not too much to say that quality lighting is the most important item in the production of a quality print.

Once an amateur realizes the importance of lighting he frequently goes to the other extreme and uses five or six lights—often needlessly and without understanding what he is doing. He collects lighting diagrams by the score, and tires his subjects and confuses himself in attempting to use a multitude of floods and spots on every picture.

It is not possible to acquire the top-notch professional's ability to handle light without painstaking experience, but one can readily understand what the good

photographer attempts to do with light, and knowing, thereby make better pictures. It is also possible to condense the main features of good lighting into one simplified arrangement using only two lights. This "Good Lighting—Simplified" works for movies and stills, floodlighting and flashlighting. It is sometimes the lighting arrangement which would be chosen by the most experienced commercial illustrator, but in any case it is always good lighting, far above the level of most amateur endeavors.

The photographer's basic requirement for lighting is the obvious one that he must have light for exposure. Beyond this, he attempts to use light so that his final picture, which is on a flat piece of paper, gives the impression of "form and roundness."

There are two schools of thought on how this is best achieved. The first group takes its cue from the great portrait painters of the past and says that in nature there is only one source of light, so, to look natural, pictures should appear as if lighted from one main source. They attempt to show form by having their main light cut diagonally across the face of their subject. In this group are many portrait photographers.

The second group believes the impression of realism and "three dimensions" can be created best by light coming from various directions without regard to the painter's convention of one natural source of light. In this group are most of the commercial illustrators and 100 per cent of the Hollywood cameraman.



COVER UP the right and left halves of this picture alternately, and notice how much more depth the left half has as a result of the two-lamp 45° back lighting.

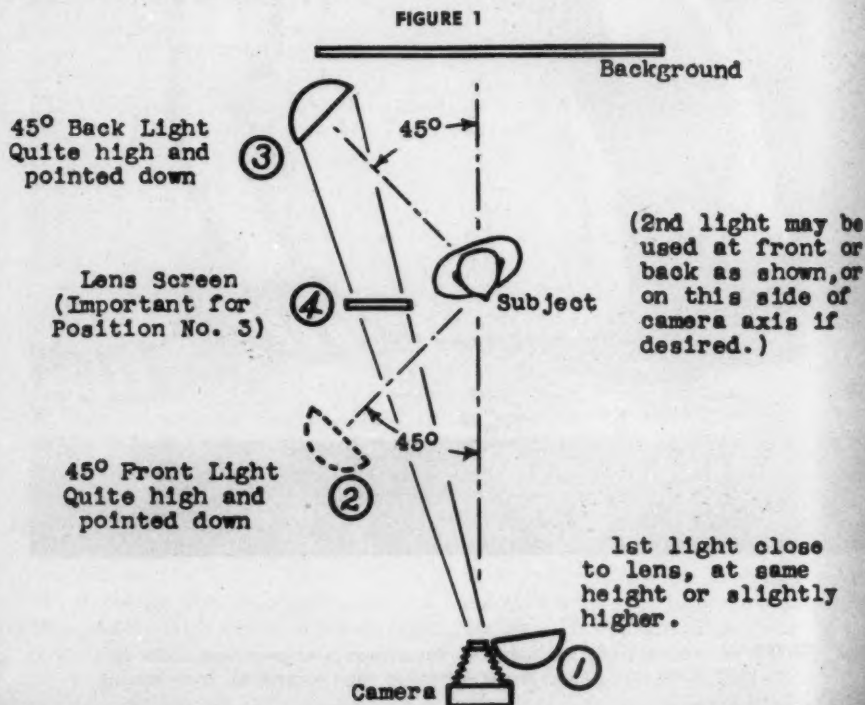
Let us examine the lighting diagram below, and see how lights can be used to produce these effects. By putting one light right at the camera, as at (1), light for exposure is provided. Situated so close to the lens, the camera sees no shadows. The lighting is "flat" and uninteresting, but minimum exposure can be given. The newspaper photographer, who must have a light of utmost portability in order to get his picture, puts his flashgun right on the camera. He knows it is far from best lighting, but it is "light for exposure." An example of this direct front lighting is shown in Fig. 2 on the opposite page.

To show modelling, or "form," it is necessary to have a second light. If it is put high, to the side, and in front of the subject, as in (2), we will have a form of 45-degree front lighting frequently used in portraiture. The light cutting downward across the face of the subject casts shadows which indicate form. In Fig. 3 the head is illuminated with only one light which is high, to the side, and in front.

Fig. 4 shows the combination of this side light, which produces modeling, with the light at the camera.

In using two lights in this 45-degree front lighting arrangement, the amount of modeling effect produced depends upon the relative distance of the two lamps from the subject. If they are both at the same distance, the modeling effect will be small, but the contrast will be satisfactory for color film. As the side light is moved closer to the subject, the modeling will be more pronounced. For black-and-white photography a position where the side light is only half as far from the subject as the camera light will be found satisfactory. The lamp at the camera will illuminate the shadows, but the side light will definitely predominate and create the effect of a single light source.

The second way of using light to give the impression of roundness is to put the lamp high, to the side, but in back of the subject, as at (3), Fig. 1. Light will then strike the side of the subject, creating a





PRACTICE LIGHTING before taking any pictures. Illustrations on this page were all made with one or two lights and should prove helpful to the beginner who wants to learn how to place his lights to get the effects he desires. After learning how to figure out lighting setups by a study of the shadow areas check the lighting on some portraits by top-notch photographers. In time the location of each light becomes evident and you will be on the road to better lighting which is the very heart and soul of photography.

FIG. 2. One light at the camera. **FIG. 3.** One light in the 45° front position. (High, to the side, and in front.) **FIG. 4.** Two lamps in Figs. 2 and 3 used simultaneously (45° front lighting). **FIG. 5.** One light in the 45° back position. (High, to the side, and in back.) **FIG. 6.** Two lamps in Figs. 2 and 5 used simultaneously (45° back lighting).

highlight that will give the impression of depth and make the subject stand out from the background. The position of the 45° back light is not very critical, but its distance from the subject should be less than the distance of the camera lamp from the subject.

Fig. 5 shows the effect of the back light alone. However, the shadows need to be illuminated, and this is the purpose of the lamp at the camera. As mentioned previously, it alone produces the effect shown in Fig. 2, but when combined with the back light, Fig. 6 results.

Unless shielded, the back light will shine directly on the lens, producing flat grey prints exhibiting flare and possibly even lens "ghosts." It is extremely important in using this 45° backlight arrangement that the camera be protected either with an effective lens hood, or with an opaque shield as at (4), Fig. 1. The usual lens hoods are ineffective for this purpose because they are too shallow. The amateur really needs something like the deep matte boxes used on professional Hollywood

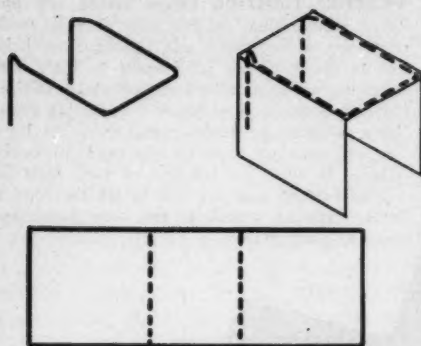
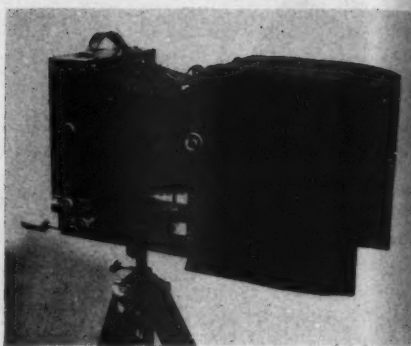


FIGURE 7—LENS SHIELD—FIGURE 8



movie cameras. For some cameras it is easy to construct one which will do the trick nicely by making a removable wire frame (from a coat hanger) over which a black cloth can be draped. The one in Figs. 7 and 8 has a U-shaped wire frame which hooks onto the lens board. It is held in a horizontal position by portions of the ends of the U which are bent downward at right angles and rest against the lens board. The black cloth has a pocket sewn in the center section which is slipped over the bottom of the U to keep the cloth in place.

Another method is to interpose a large piece of cardboard between the back lamp and the lens, such as at (4), Fig. 1. This may be any place provided it permits the backlight to hit the subject but not the lens. If one has an assistant holding the backlight, as frequently happens in photo-flash photography, he can hold up a magazine as a shield. The only exception to the use of the shield is in the case of spotlights which can usually be focused so as to illuminate the subject without shining on the lens.

As to exposure, it is possible to simplify matters by basing all calculations on just the one lamp at the camera. With this one light alone the distance from it to the subject is the determining factor. If Exposure Guide Numbers are being used, divide the Guide Number by the lamp-to-subject distance in feet to get the F value. When using two lamps this basic exposure figure

should be used as obtained, or modified depending upon the position of the second light.

If 45° front lighting is being used, the brightness range of the subject is much greater than when flat front lighting is used alone, and the highlights should appear lighter, and the shadows darker. Since the only light to reach the shadows comes from the front light we can achieve this effect by reducing the exposure based on the front light alone by a factor of two to four. The front side light, in general being closer, will automatically bring about an increased exposure of the highlights. If, instead of calculations, an exposure meter is being used, a reading with both lights on can be taken close to the subject to exclude the background.

With the 45° backlighting the back lamp should be turned off before taking an exposure meter reading, since it contributes nothing to the exposure of the main areas of the subject. Full exposure based on an exposure meter reading or Guide Number for the camera lamp should be given.

It is difficult to get good pictures with only one light, and the use of more than two requires considerable skill. For the average person, two lights properly used will cover the great majority of cases.

As between the 45° front lighting combination and the 45° back, I have a definite preference for the latter. It is easier to use, lamp placement for best results is not



AT THE LEFT: Lamps at (1) and (2) (Fig. 1) for 45° front lighting. Compare with Fig. 4.



AT THE RIGHT: Lamps at (1) and (3) for 45° back lighting. Compare the lighting on the doll, and on the child's head and legs with Figure 6.

so critical, and exposure based on the camera lamp is quite exact. It is more dramatic, gives a better impression of roundness, and gives good separation of planes. Notice the frequency with which the back lighting is used in magazine advertisements, and analyze the lighting the next time you go to the movies. In Hollywood visitors are frequently amazed to find more light on the back of the subjects than on the side toward the camera. Torkel Korling, famous baby photographer, says the two-lamp backlighting arrangement is the best one for taking pictures of children. Most youngsters are far too active to permit elaborate studio set-ups. Try one light at the camera, and one on the side and back next time.

Here, then, are the four rules for our simplified good lighting arrangement. These work for flood and flash, for movies and stills, and will enable one who has not used artificial lighting to get better than average results from the beginning.

I. Wherever possible use two lights to insure interesting lighting.

II. Always use one lamp as close as pos-

sible to the camera, a little above the lens in preference to alongside it. While the exposure may be modified by the position of the second lamp, our exposure calculations can usually be based entirely on the distance of the camera lamp from subject.

III. If approximately 45° front lighting is desired the second lamp should be placed high, to the side, and to the front at about half the distance of the camera lamp. Exposure should be one or two stops less than for the front light alone.

IV. For back lighting, the second lamp should be placed behind the subject, high and to the side. It should be turned off when exposure meter readings are taken, and exposure should be for the full value for the front lamp alone. It is extremely important that the lens should be shielded from the light of this back lamp.

That's all there is to it! These rules will give good results, and are excellent foundation stones on which to build a knowledge of artificial lighting which everyone who considers himself a photographer must have, for without good lighting it is impossible to make fine pictures.



DAWN TO DUSK

*The Retlaw Camera Club of San Francisco
uses this photo-hunt program twice a year.*

A REPORT BY JACK WRIGHT, A P S A



SUPPOSE that at 9:00 o'clock on a rainy Sunday morning you were given a slip of paper bearing the words: "Still life with metal, cobblestones, or brick."

Could you, before 7:00 o'clock that evening, photograph, develop, print, tone, dry, and mount a still life of metal, cobblestones, or brick? And would your print meet the demands of general interest, composition, and high print quality imposed by a discerning judge?

The Retlaw Camera Club of San Francisco twice a year has such dawn-to-dusk picture contests. Members report these contests are among the most popular on their programs and they bring out a surprisingly large number of members. Competition is intensified by the time element and each picture becomes not only a photographic print but the story of an adventure.

To the president falls the job of selecting the

subjects for assignment. This is not easy, for members must be given a choice of alternate subjects and the assignment must be fair to all. Alternate assignments are given because bad weather may necessitate working inside, a statement which the Chamber of Commerce would brand as heresy.

DEENY

SAUL MILLER



By 9:00 o'clock on the day of the contest the president plants himself by his telephone, for members may get their assignments over the phone, if they wish. Since 9:00 o'clock comes particularly early on Sunday mornings, and human nature being what it is, most members get their assignments by phone rather than by calling for them.

The president holds an old slouch hat containing 30 or 40 slips of paper on which are



PORTRAIT OF A BOY

HAROLD KOCH

typed the assignments. The phone rings: "This is Joe Doakes," says a voice. "Pick me out a good one." The president reaches into the hat, stirs the contents vigorously, conscientiously closes his eyes, and pulls out one: "It says here," he announces, "'Still life with basket or baskets; scene with boat or boats!'"

"Cripes," complains Joe. "That's a toughie. I haven't got a basket and I haven't got a boat. How about another draw?"

The president stands firm, of course, and hangs up. Joe presumably starts looking for a basket or baskets, or a boat or boats. At 11:00 A. M. or thereabouts, the president massages his cramped ear and wearily starts out to do his own assignment. One of the penalties of his office is to set a good example for the other members.

The wide variety of subjects assigned in the Retlaw Club's contests is indicated by a recent list worked out by the current president, Harry Hershel. Here is part of



his list: Hands at work; portrait of a girl; religious figure with candle; still life with metal; still life with basket ware; person playing golf; sheep, with or without figure. Portrait of a man; street scene. Self-portrait; playground scene. Person smoking; fabric design and texture; church; horse or horses, with or without figure. Still life with glass or crystal; duck or ducks; figure with musical instruments; figures at chess or checkerboard; door or



SELF PORTRAIT

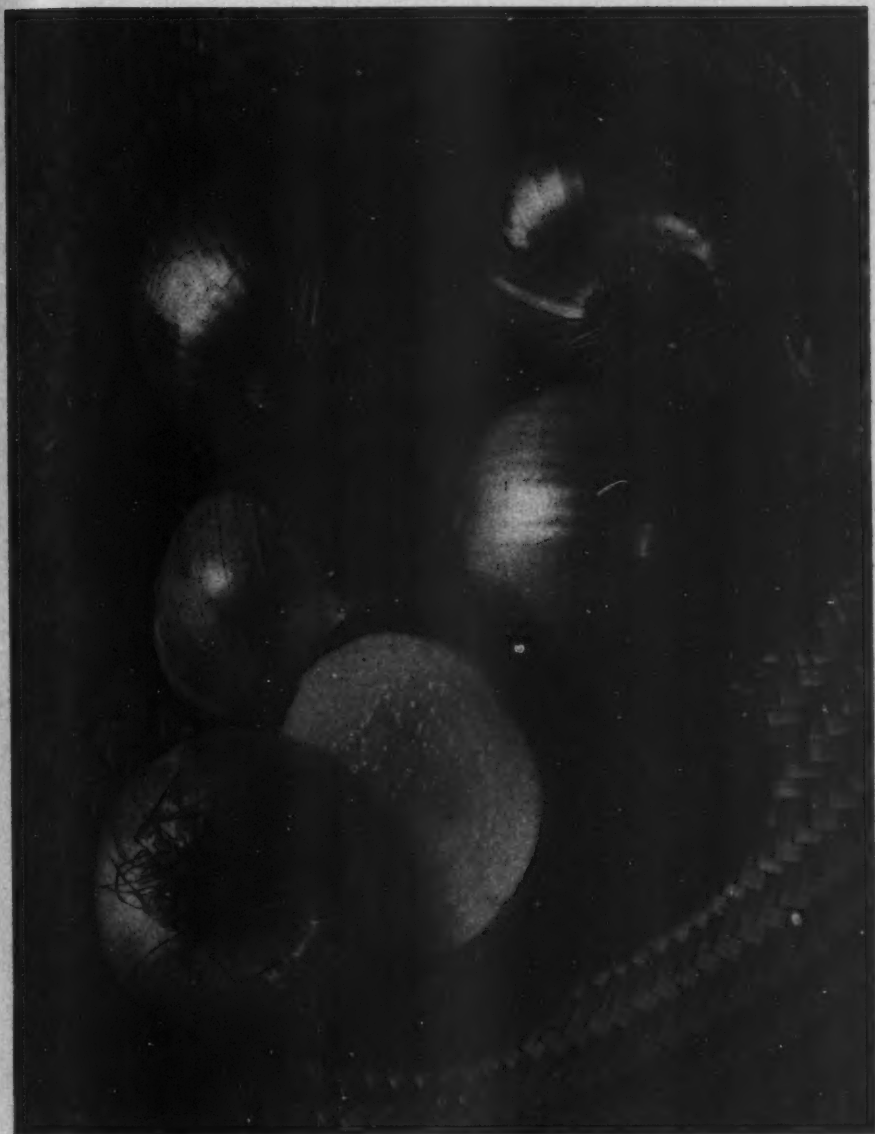
RAY SCOTT

entrance with or without figure; composition with three figures conversing; cable-car; man's arm and shoulders depicting strength; reflections; portrait of a cat; architectural design with or without figure; fence or gateway with or without figure.

Retlaw members go about their assignments in different ways, depending on their temperaments, but all are enthusiastic. Some of them bound out of bed, jump into their clothes like firemen, and dash off in all directions with a tripod in one hand, a camera in the other, and gadgets hanging around their necks. Many are dogged by the fear that, even after they have found their picture and taken it, something may go wrong in developing or printing and they may have to go out and do it all over again.

Others, either less inclined to worry or more fond of bed on Sunday morning, doze off for an additional forty winks, and take the day's work calmly in stride later on.

On contest days, San Franciscans often encounter mysterious strangers, carrying cameras and slips of paper containing



VEGETABLE STILL LIFE

M. KOCH

cryptic words, and more than likely talking to themselves. It is on these Sundays that police headquarters receive reports of Jap spies photographing the gas works or the harbor. One Retlaw member with a slightly Oriental countenance is disappointed if he isn't questioned from

three to a dozen times during the day. He never goes out without his membership card in the American Legion, his auto operator's license, and a letter from his pastor.

By early afternoon the contestants begin to trickle back to their darkrooms with



their films. It is here, when developing the film, that the more unstable member develops a severe attack of thumbs. He uses roll film, winding the film on a spool in total darkness and dunking it in a tank. When he turns on the light he finds he has

wound the protective paper on the spool and his precious film lies coiled on the floor. With a yell of anguish he grabs his camera and starts out again. The member with the calm and serene habits proceeds with unhurried efficiency to get his job done and has his film ready to print by mid-afternoon.

Drying films and prints quickly is a major problem for contestants. They solve the problem in a variety of ways. Some use alcohol or one of the commercial quick-drying solutions. Others suspend films and prints over radiators, or in front of open fires; some walk them back and forth from livingroom to bedroom to kitchen, waving them back and forth, singing lively march tunes. One member mounted his print sopping wet and in agony watched it curl tighter and tighter on its mount during the evening.

(Continued on page 108)

THANKS UNTO THEE. O LORD

KFN HALL





If you want modern convenience and finest results in the processing you do yourself, tie up to the outstanding chemical preparations which Kodak research is constantly providing. Among the latest are *Versatol*, a universal liquid developer for negatives and prints... *Microdol*, an unusually efficient fine-grain developer for films and plates... *Selectol*, an improved developer that yields superior prints on warm-tone papers. At your Kodak dealer's.

Kodak

BULLETINS

NEWS OF KODAK PLANS AND PRODUCTS

See your Kodak dealer

KODAK products are sold through Kodak dealers, any of whom will be glad to complete the descriptions of Kodak products which are "sketched" in these two pages. Usually, too, they will give you opportunity for first-hand inspection of the advertised items.

And in matters of general photographic information your Kodak dealer will be found to be well and soundly informed.

Transparent Colors—In the general, and natural, preoccupation with the technical and scientific aspects of photography's progress, many of us have lost sight of such things as the hand coloring of prints and enlargements. There is a great deal more skill and control involved than is generally realized. And, too, there are satisfactions to be gained which are very real.

Kodak offers two media for such work—Kodak Transparent Oil Colors and Kodak Transparent Water Colors. Excellent work can be done with both, but neither can be handled carelessly. They repay considerable respect and study.

The basic oil outfit consists of fifteen tubes of colors. (Individual colors may also be had in the small jars which were used during the period of greatest metal-foil scarcity.) In the outfit there are bottles of Transparent Medium, Sizing Fluid, and Cleaning Fluid as well as stump cotton and wooden applicators. A carefully prepared booklet is included, in

which the theory and practice of oil coloring are unusually well presented. The Outfit sells for \$3.75.

The Kodak Transparent Water Color Outfit has recently been improved to give it greater scope and flexibility. The colors are incorporated in a book; there are twelve colors, from which any desired hue, shade, or tint can be obtained by mixing. In the book is a full description of approved procedure. The price is 75 cents.

If you're looking for a hobby, coloring offers a practically unlimited field. Discuss coloring and coloring equipment with your Kodak dealer next time you are in his shop.

New Data Book—The Kodak Lens Manual has been revised; in its new format it is a Kodak Data Book covering Kodak Lenses, Range Finders, and Shutters. It takes 60 pages to do the job, and the job is well done. The text matter is up to the minute and includes, among its Depth of Field Tables, data for all lenses for the Kodak Ektra. Inside pages are punched to permit revision of the *Lenses* section of Kodak Reference Handbooks copyrighted 1943 or earlier. The Data Book, *Kodak Lenses, Range*

Finders, and Shutters, is priced at 35 cents.

Big—On contemplating the 48-inch telephoto lens Kodak produces for high altitude aerial reconnaissance, a veteran of aerial photography in 1918 was impressed. "We'd have had trouble, in those days, even getting this baby off the ground."

The lens itself weighs about a hundred pounds. And the camera it serves is no Bantam. Made for use five to eight miles up, it produces beautifully clear images of ground installations—so clear that details are revealed for easy study and interpretation by intelligence officers.

Kodak's sensational rare-element glasses are, of course, utilized in the design of this lens, as well as in other superb Kodak lenses. The experience gained in such specialized lenses will not lapse into disuse as Kodak moves into production for peace.

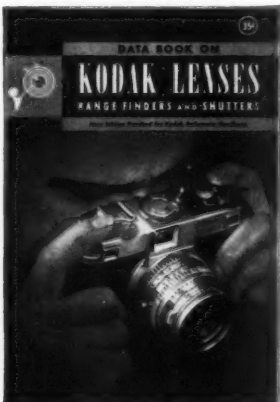
Military Coverage—Toward the end of operations in Europe, the Army Air Forces made about twenty million photographs a month. And the other services used photography on a similarly large scale. While the locale of operations has shifted, photographic film, paper, and equipment continue as basic military factors.

Increasingly, military leaders work on the basis of not moving a single man unless and until they have seen photographs of the place into which the man is to move. And that means that the man involved sees the pictures, too. . . . The net result: lives saved, objectives gained.

KODAK BUILDS

OVER and above the expansion necessitated by the demands of war production—the magnificent new Hawk-Eye Works, for example—the present building program includes an addition to the Camera Works, new dining and recreational facilities at Kodak Park, and a new Kodak Office structure.

All of these changes are very





Much-needed office space will be provided adjoining Kodak Tower.

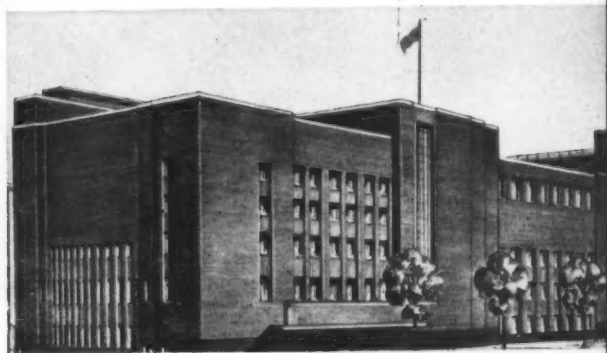
much in order. At Kodak Park, for example, vastly increased personnel through the years has made the existing dining and recreational facilities inadequate. The new building will have two great cafeterias and a service dining room, with capacity for 3,800 persons at one time. There will also be a 1300-seat auditorium, a gym, bowling alleys, Camera Club and Athletic Association Headquarters.

Kodak Office capacity will be greatly enlarged when two of the older units are replaced by a new structure in front of and alongside the famed Kodak Tower. This new building will provide sorely needed new office space as well as improved quarters for the Medical Department and the photographic studio, and additions to existing recreational facilities.

All of which means simply that Kodak's faith in America's photographic future is very strong. Kodak facilities will measure up to it.



New lens-making facilities at Hawk-Eye.

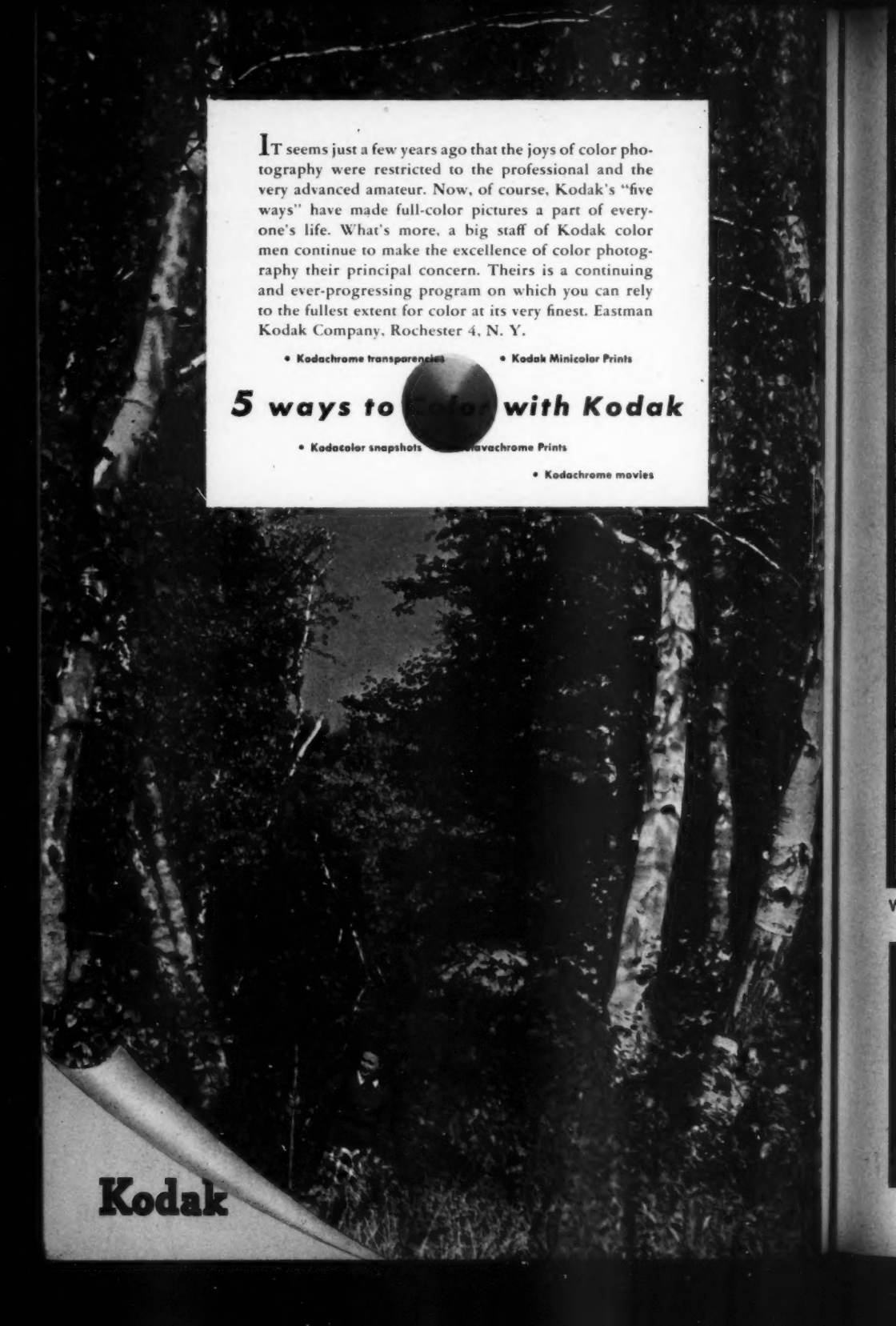


The projected dining and recreation building at Kodak Park.



An addition to this "new" Camera Works is now nearing completion.

Kodak



IT seems just a few years ago that the joys of color photography were restricted to the professional and the very advanced amateur. Now, of course, Kodak's "five ways" have made full-color pictures a part of everyone's life. What's more, a big staff of Kodak color men continue to make the excellence of color photography their principal concern. Theirs is a continuing and ever-progressing program on which you can rely to the fullest extent for color at its very finest. Eastman Kodak Company, Rochester 4, N. Y.

• Kodachrome transparencies

• Kodak Minicolor Prints

5 ways to color with Kodak

• Kodacolor snapshots • Ektachrome Prints

• Kodachrome movies


Kodak



VERMONT VILLAGE

GUSTAV ANDERSON

PICTURE SECTION



WELL, GEE WIZ . . . !



WILLIAM S. COWARD, PHILADELPHIA EVENING BULLETIN



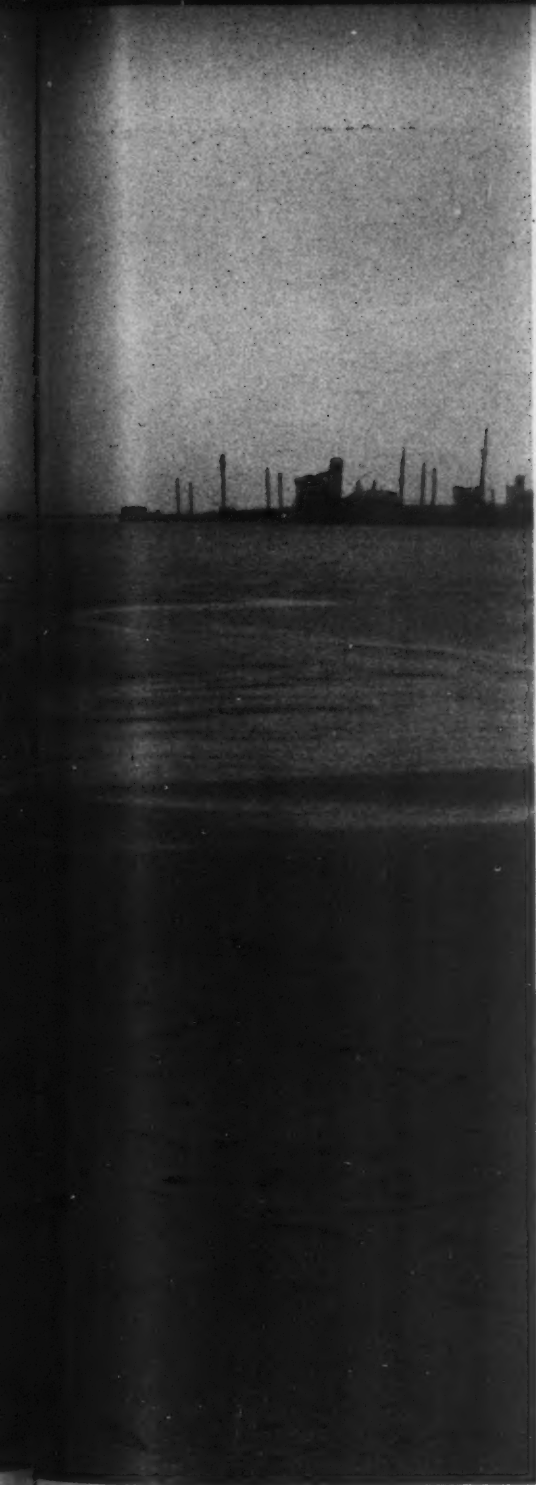
CARNIVAL

RAYMOND BASTIONELLO



CEDRIC WRIGHT





D-DAY + 365

THREE LITTLE French girls play a continental version of hop scotch on the sands of Normandy, June 6th, 1945, one year after the great invasion of Fortress Europe by the Allies. Photo from *Tank*, The Army Weekly.



THE FLYING GROUP



HOW WAS THIS MADE?

THE FLYING GROUP picture was made with an Eastman Kodak Graflex camera, size three and a quarter by four and a quarter. The camera was equipped with a Ross Express lens, $f/4.5$. The shutter speed was set at $1/500$ th second. The lens was wide open. **THE FLYING GROUP** was exposed on Eastman Kodak film, Super Double X.

In lighting this picture, I used six No. 4 Photofloods, three on each side of the studio, mounted at different levels so as to distribute the light evenly on the figures in motion. I also used three 1,000-watt spotlights, to illuminate the heads and faces. Two of the spotlights were placed in front of the dancers and one in the back. My large north window helped supply me with additional light. I do not use flashbulbs or stroboscopic lamps, as in my opinion, they tend to freeze the fluidity of motion. The quality of trembling movement is particularly evident in the draperies, hands and faces of the composition, "*The Flying Group*."

The film was developed by tray; fifteen minutes developing time. The developer used was fine-grain Eastman D-72. Special care was exercised in drying the film, so that it dried evenly. The picture was enlarged on Defender paper, with a very small lens stop. There was much dodging done to equalize the values of light on the faces and to compensate for the contrasty skirts. I used a piece of cardboard with a very small hole cut in it for the dodging. The cardboard was large enough to completely cover the sheet of enlarging paper which was 14 by 17 in size. I discovered that for my dance pictures I need a large-size of enlarging paper.

I believe that it is most imperative to use large-sized sheets of paper for dance pictures, so that the forms in the space are accused more intensely as if seen or framed by the proscenium in a theatre. To me, the final important factor in producing a successful picture is the cropping. For example, the floor line in "*The Flying Group*" at the left-hand side is slightly raised, and recedes gradually to a slanting thinner point at the extreme right-hand side of the picture. This seemed to me, after many experiments, to provoke the sensation of a greater momentum of directional flight.

Proportional cropping of the remaining three sides was governed by the floor line, and specially trimmed to the ultimate or perfect archaic intensity.

THOMAS BOUCHARD.

THOMAS BOUCHARD

MAKE A CONTACT PRINTER

BY ROBERT WORTHAM

A PHOTO PRINTER may be made with a built-in drawer that dispenses with wrapping and unwrapping paper each time a print is made.

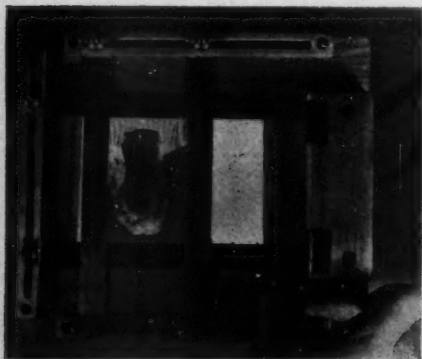
The adjustable masking blades illustrated below assure quick alignment of any size negative up to 4x5 inches, and simplify the problem of uniform margins and cropping.

The printer is inexpensive to build and virtually "priority proof." Required hinges, drawer pulls, lamp sockets and

switches can be purchased in most dime stores.

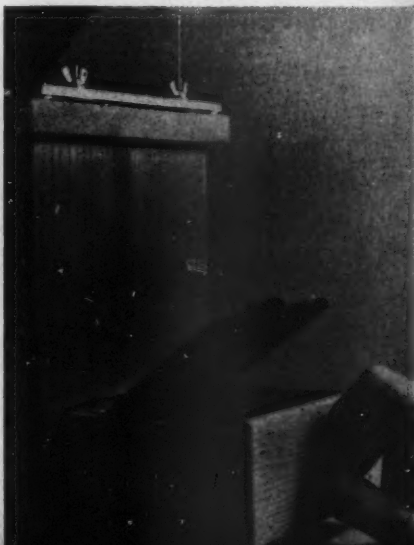
Hardwood will serve luxuriously for the construction of the box, but white pine is satisfactory. For rigidity, it is advisable to use three-quarter inch stock. The dimensions given in the drawing are for a 4x5 printer, but they can be altered to suit individual needs.

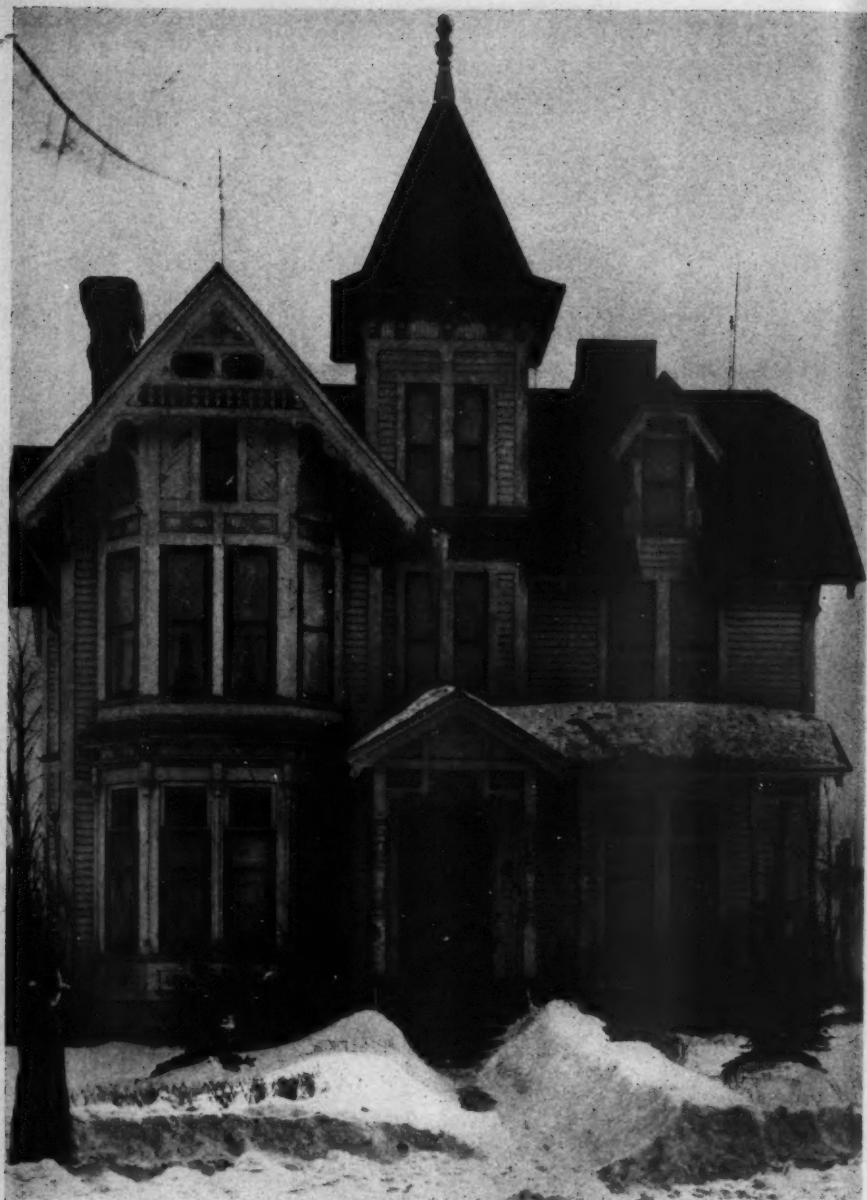
Care should be taken in cutting and fitting the parts of the lamp box, to ward against light leaks. Before assembly, all



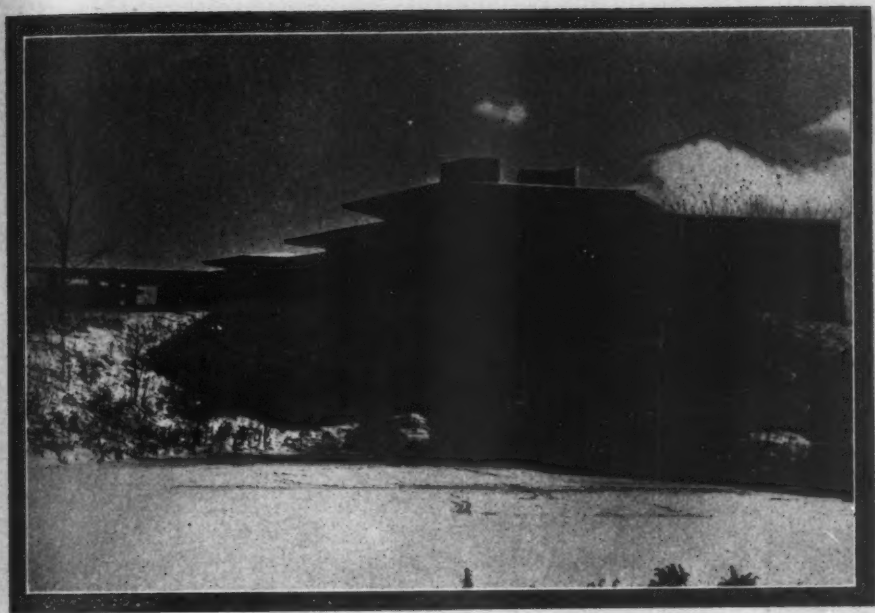
ABOVE. Top area of printer with platen removed to show masking blades and guides.

RIGHT. Cover makes drawer light-tight.





VICTORIAN STYLE in architecture called for a profusion of curlicues, spires, and gables. Possessed perhaps, of a certain nostalgic charm, some of its details can still be found in today's house plans.



FRANK LLOYD WRIGHT designed this home; its profile accents the hill on which it stands.

COME INTO THE PARLOR of the old and the new

The "seeing eye" of an observant photographer dramatizes the difference between Victorian and Modern. Do you feel kinship to either one? - - or both!

BY JOE MONROE

WHAT is the difference between the old and the new—between Victorian and Modern? The difference is a deeply rooted one and perhaps by looking at these pictures of an 1890 and 1945 home we can sense the essence of each.

Dr. M. F. Agha, art editor of *Vogue* for almost two decades, and now consultant to

designers and publishers, has this to say about the difference: "Two elements," says Dr. Agha, "are essential to modern design. The first is logic, and the second is beauty. Combine the two skillfully, and the result is modern art."

The Victorians never bothered about logic. The home (Page 78) faces north, and the front rooms never catch the full



LIVING ROOM of the Wright house has a fine, airy feeling, bringing close coordination with the outdoor scene. The expansiveness is heightened by horizontal double-pane glass panels.

sunlight. There is a maze of gingerbread; each pillar, dormer, cornice is embellished like a wedding cake. What purpose does it serve? Do the carvings on the pillars upholding the porch make them stronger? Are they beautiful in their own right? To this the modern has but one answer: "No, thank you."

WELL, I'm a photographer, not an architectural writer, and if I could write about what's in my pictures, I wouldn't use a camera.

Before entering the Army, I became interested in architecture and photographic interpretations of structures—especially after doing work for men like Frank Lloyd Wright, Eliel Saarinen and others.

One pictorial device that helps reveal fundamental characteristics is the use of contrasting images, as shown in the accompanying illustrations.

The "modern" treatment of the American home is represented here by designs from Frank Lloyd Wright.



IN STRIKING OPPOSITE we see the living room of a Victorian home. The stained glass windows and pleated curtains bring in diffused light. Vistas beyond the windows have no part in this room.

Wright believes that a home, whenever possible should be made from the materials in its vicinity and that it should blend in and be a part of its scene. He also holds that a home should be conceived to suit the living requirements, the personality and hobby interests of the owners.

All photographs of the Wright houses were made with a 4x5-inch Eastman Graphic View camera—that luscious all-metal dream with the galaxy of “swings.”

Three different lenses were used: a 4¾-inch Goerz Dager, a 6-inch Dager, and an

8-inch Eastman f7.7 Anastigmat. Fast pan film was used and developed in pyro by inspection—all the way from over-normal for flat scenes down to “water-bath” method for extremely contrasty views—with exposures adjusted accordingly, of course. Supplementary lighting was used on interiors when necessary in the form of three No. 4 photofloods. A minus-blue (Wratten No. 12) filter, my favorite, was used on outdoor shots.

Whenever possible I try to visit the place for an hour or so without a camera,



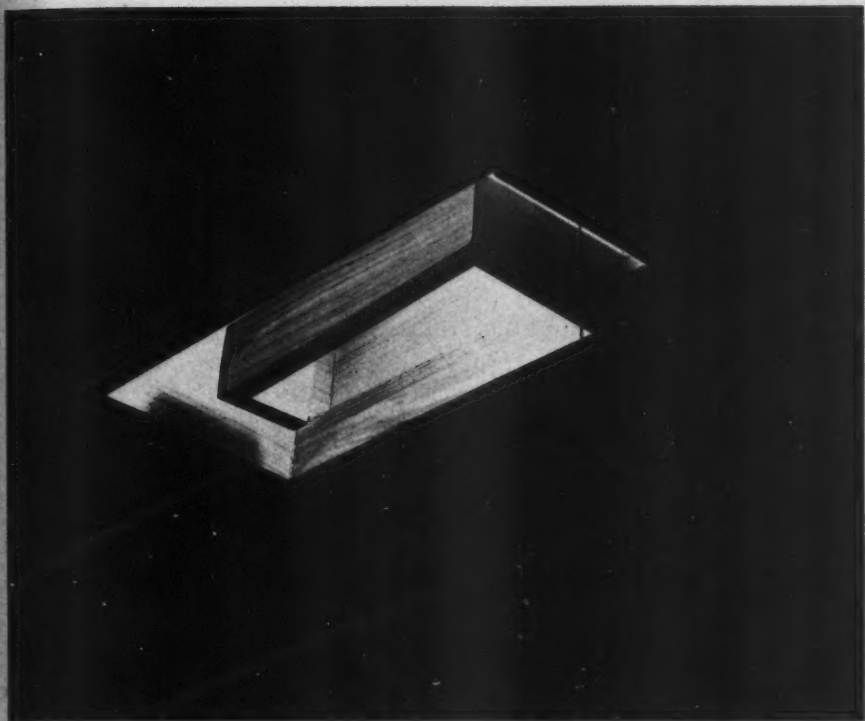
A CHANDELIER in a Victorian parlor; five globes and two glass pendants give a dusky light.

look it over from all angles, talk to the occupants, and then sleep on it. Arriving early on a sunny morning, I begin shooting, working first on the angles best shown in the morning light, also catching any interiors which morning light may enhance. Same in the afternoon and the remainder of the interior shots at night. Usually another day is required on re-takes and new angles after developing the negatives of the first day's shooting.

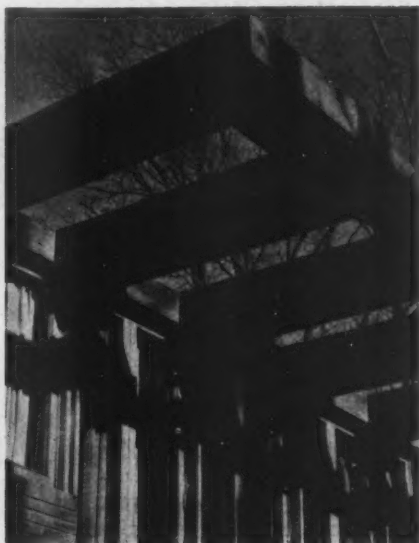
I vigorously believe there is no room for

fuzziness in architectural work—either in the print or in thinking. Small apertures, glossy paper, seem to me to go hand in hand with architectural photography. But more than that, the photographer must “see” as the architect saw—put himself in the designer’s mind, if you please, and ferret out the angles and lighting that will best interpret the structure.

I realized, as I formed acquaintances with the owners of three Wright houses, how such things as house layout, number



A LIGHT FIXTURE in a Wright home. Here simplicity pauses just long enough to accent the design of that which surrounds it. Below (*left*) a detail of the porch of a Victorian home revealing an infinity of dodads; below (*right*) a detail of a modern porch made of glass and wood.





ABOVE THE FIREPLACE in this Victorian home these two China figurines contemplate each other before a mirror. The fireplace itself is of ornate black marble construction.

and size of rooms, facilities for recreation and cultural activity, color schemes, furniture design, decorative themes, and all the complex factors in home design—evolve here around the occupants. Their ages, occupations, interests, hobbies, personalities are all studied by the Wisconsin architect and are woven as an integral part of the house plan. Brick, wood, glass, cement,

metal—all building materials—are used by Wright with full appreciation of their inherent nature and surface texture. If there is brick on the outside, then brick will be on the inside; wood outside, the same wood inside, etc.—logic, simplicity, honesty.

This is the “meat” of architectural photography—this sensing of what the de-

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A WRIGHT PRINCIPLE that "form follows function" grows here into a strikingly warm arrangement of brick and wood. The same building materials are used in here as appear on the outside of the house. Incidentally, I used side-lighting here to give modeling to the structural features.

signer is "about" must be developed before the photographer can know what he is "about." Of course, technique must be there to convey.

Naturally some architectural picture making is very exciting. I find a singular fascination in shooting extremely bad or grossly exaggerated architecture, also old barns, rural churches, industrial forms, slum dwellings, and other places that are interesting or out of the ordinary due to social or economic conditions, or because they serve raw function, or express a "period," or strike a whimsical note. But for some strange reason a vast majority of American homes today are neither fish nor fowl to me; they seem to represent the rag,

tag, and bobtail of a disjointed, unorganized scheme of American housing design.

Many people are probably "quite comfortable where they are, thank you!" and, indeed, this being America, we have a perfect right to so say. On the other hand, many are thinking of the post-war house—what we want it to look like, "feel" like, how it will function.

As a photographer who has assembled these houses in the groundglass, there is no doubt in my mind but that the pictorial comparison of these homes points the way toward a warmer, functional, integrated, and more honest architecture for the anxiously awaited future.

PHOTO DATA

CLIP SHEET FOR PERMANENT REFERENCE

MINICAM
PHOTOGRAPHY

PROCESSING FORMULAS FOR ANSCO COLOR REVERSIBLE FILM

(Continued from September)

CLEARING BATH

Ansko No. 854. Clearing Bath for Reversible Color Film

	Metric	Avoir.
Water 65-90°F.	750 cc.	24 oz.
Ansko Sodium Bisulfate	10 g.	$\frac{1}{2}$ oz. 40 gr.
Ansko Sodium Acetate	30 g.	1 oz.
Water to make.	1 l.	32 oz.

Do not dilute for use.
Use for 3 minutes at 60-70°F.

This bath serves the double purpose of neutralizing the color developer and preventing swelling of the emulsion. If the film is placed directly in the hardener after the color developer, a scum will form on the film surface as a result of the neutralization of the chrome alum by the developer. If the film were rinsed in water instead of in No. 854, the alkaline emulsion would swell badly.

The concentrations and ratios of sodium bisulfate and sodium acetate are adjusted to give optimum solution life without danger of blistering from rapid neutralization of the developer carbonate by the bisulfate. Reduced concentration of bisulfate will lower the exhaustion capacity and higher amounts of bisulfate may cause blistering.

HARDENING

Ansko No. 901. Hardener for Reversible Color Film

	Metric	Avoir.
Water 65-90°F.	750 cc.	24 oz.
Ansko Potassium Chrome Alum.	30 g.	1 oz.
Water to make.	1 l.	32 oz.

Do not dilute for use.
Use for 5 minutes at 60-70°F.

Following the Clearing Bath, the film is immersed directly in Hardener No. 901. This hardens the gelatin and prevents the emulsion from softening in subsequent steps of processing.

The concentration of potassium chrome alum used is not critical, but should be kept between 2% and 4% for best results. Care should be taken to get the purple potassium chrome alum, not white (potassium) alum or some loss of color may result due to the highly acidic character of white alum.

The No. 901 Hardener should be used within two weeks after mixing.

If desired, baths No. 854 and No. 901 may be replaced by a combined clearing and hardening bath No. 903, used for 5 minutes.

Ansko No. 903. Alternative Clearing and Hardening Bath for Reversible Color Film

	Metric	Avoir.
Water 65-90°F.	750 cc.	24 oz.

Ansko Potassium chrome alum 30 g.	1 oz.
Ansko Sodium Bisulfate	20 g.
Ansko Sodium Acetate	22.5 g.
Water to make.	1 l.

32 oz.
Do not dilute for use.
Use for 5 minutes at 60-70°F.

With formula No. 903, film may be carried directly from the color developer solution into the hardener without intermediate rinsing. Provided the film is agitated constantly for the first minute, this buffered chrome alum formula will not give scumming. The addition of buffering agents to the No. 903 hardener tends to reduce the hardening action of the alum. After several weeks storage, even without use, such a buffered hardener has lost the major portion of its hardening ability and should not be used.

Tests indicate, however, that the No. 903 formula will harden satisfactorily for five to seven days.

Regardless of whether hardener No. 903 or No. 901 is used, the film should next be washed for 5 to 10 minutes with frequent agitation.

BLEACHING

Ansko No. 709. Bleaching Bath for Reversible Color Film

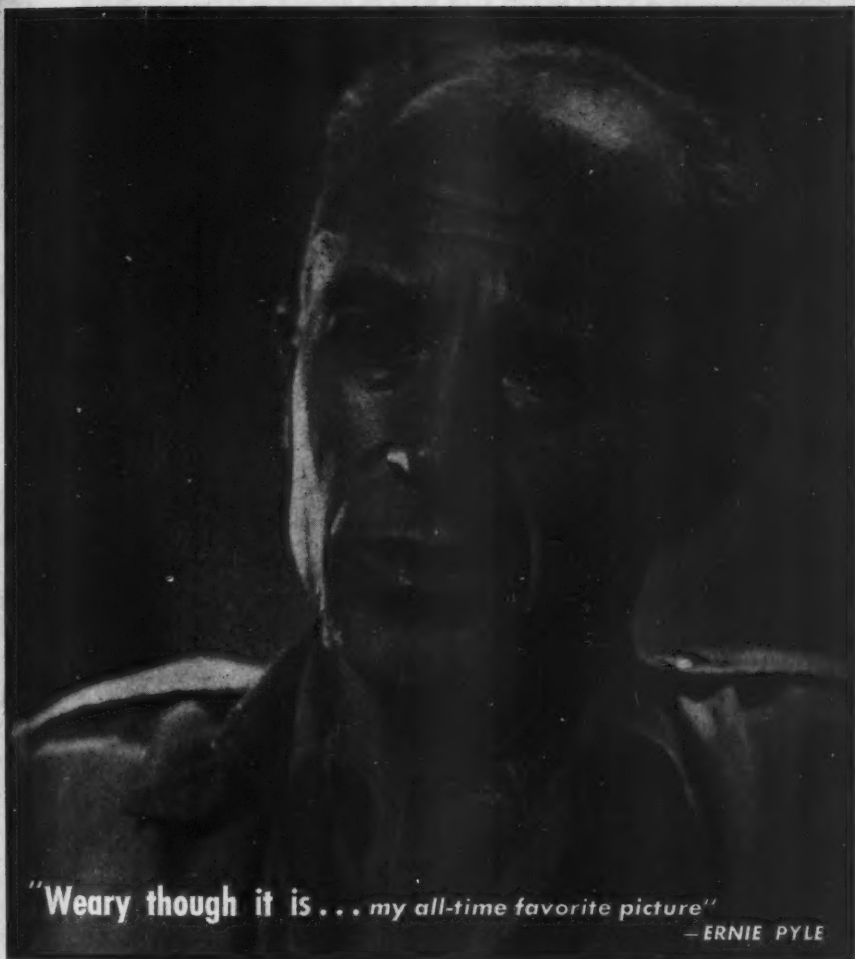
	Metric	Avoir.
Water 65-90°F.	750 cc.	24 oz.
Ansko DiPotassium Mono Sodium Ferricyanide or Potassium Ferricyanide	60 g.	2 oz.
Ansko Potassium Bromide	15 g.	$\frac{1}{2}$ oz.
Ansko Dibasic Sodium Phosphate	13 g.	$\frac{1}{4}$ oz. 80 gr.
Ansko Sodium Bisulfate	6 g.	90 gr.
Water to make.	1 l.	32 oz.

Do not dilute for use.

Use for 8 to 10 minutes at 60-70°F, or 2 minutes longer than the time necessary to change the color on the back of the film to blue-green.

In the bleach solution the negative silver image formed during first development and the positive silver image formed simultaneously with the dye image during color development are converted to silver bromide. This transformation of the silver halide takes place through the oxidizing action of the ferricyanide which attacks the silver, forming silver ferrocyanide. In the presence of potassium bromide, the silver ferrocyanide undergoes a simple replacement reaction to form silver bromide and potassium ferrocyanide. This secondary reaction increases the bleaching rate several times.

The disodium phosphate and sodium bisulfate have a twofold purpose, one as a buffer to maintain the optimum pH for bleaching (5.5 to 6.5), another to reduce the corrosive properties of ferri-



"Weary though it is . . . my all-time favorite picture"

— ERNIE PYLE

GRAFLEX-made photo, by Milton J. Pike



The picture of himself that Ernie Pyle liked best was taken by an advanced amateur photographer.

Milton J. Pike, personal secretary to Scripps-Howard's editor-in-chief, has been an enthusiastic picture-taker for fifteen years. One day he got a chance to photograph Ernie Pyle, newly returned from Sicily. The famous fox-hole

reporter talked, looked off into space, and the shutter on Milton Pike's GRAFLEX camera snapped . . . to catch "something of the anguish" that was in Ernie Pyle, to use Ernie's own words describing the picture.

Thus, for more than fifty years, have the great moments . . . the great personalities of the day . . . been recorded for all time with GRAFLEX-made Cameras.

GRAFLEX gets great pictures!



VISIT GRAFLEX INFORMATION CENTERS for all GRAFLEX users, at 50 Rockefeller Plaza, New York 20, N. Y., and 3045 Wilshire Blvd., Los Angeles 5, Calif. When in New York, see the Grafex exhibit, "Photography at War," in the Museum of Science and Industry, Radio City.

PHOTO DATA

CLIP SHEET FOR PERMANENT REFERENCE

cyanide which in plain solution will badly corrode many types of stainless steel and monel alloys.

The concentration of ferricyanide may be increased to give a higher bleaching rate but it should not be lowered below 60 grams per liter or poor bleaching may result. Fifteen (15) grams of bromide is sufficient for normal exhaustion of the bleach, and increased bromide will increase the corrosive action.

The ratio of bisulfate to disodium phosphate should not be varied more than 10% in either direction. Too high a bisulfate concentration will give a strongly acid bleach that will harm the colors, and too alkaline a bleach (from too much disodium phosphate) will give stained highlight areas.

The corrosion protection may be raised or lowered by varying the concentrations of sodium bisulfate and disodium phosphate simultaneously.

Another bleach formula, No. 713, is recommended where continuous processing is done or where great quantities of film must be run through the processing solutions.

Anso No. 713. Alternate Bleach Bath for Reversible Color Film

	Metric	Avoir.
Water 65-90°F.	750 cc.	24 oz.
Anso DiPotassium Mono Sodium Ferricyanide or Potassium Ferricyanide.....	100 g.	3½ oz.
Anso Potassium Bromide ...	15 g.	½ oz.
Anso Dibasic Sodium Phosphate	40 g.	1½ oz. 40 gr.
Anso Sodium Bisulphate	25 g.	¾ oz. 40 gr.
Water to make.....	1 l.	32 oz.

Do not dilute for use.

Use for 8 minutes at 60-70°F. or 2 minutes longer than is necessary to change the color on the back of the film to blue-green.

This formula will give more rapid bleaching throughout a longer life by reason of its higher ferricyanide concentration. The increased amounts of disodium phosphate and sodium bisulfate tend to reduce corrosion to a minimum.

Regardless of the bleach solution used, it is necessary to make certain that bleaching action is complete. Failure to secure adequate bleaching through too short a bleaching time, insufficient agitation or the use of exhausted solution will result in a yellowish veil of silver over the entire picture.

Following the bleaching, wash the film in cool running water for 3 to 5 minutes, or until the wash water is no longer stained yellow. Failure to wash properly so that bleach is carried over into the hypo will not harm the transparency, but bleach carried over will greatly shorten life of fixer.

FIXING

Anso No. 800. Plain Hypo Fixing Bath for Reversible Color Film

	Metric	Avoir.
Anso Sodium Thiosulfate (hypo) ..	200 g.	6½ oz.
Water (125°F.) to make.....	1 l.	32 oz.

Do not dilute for use.
Use for 5 minutes at 60-70°F.

This fixing solution serves to remove the silver bromide images left after the bleach. The concentration of hypo used may be varied considerably without affecting the fixing action. Exhaustion of the fixer is indicated, just as in black-and-white processing, by an increase in the time of clearing the film. A good rule to follow is to fix for twice the time necessary to clear the film—approximately 5 minutes. At this point the transparency should appear as a beautiful full-color reproduction of the original scene.

A word of caution is advisable. If an acid fixer of the A-201 type should be used to fix color film, part of the dyes would be destroyed. A neutral or slightly alkaline hypo bath should always be used.

After fixing, the film should be washed in running water for at least 10 minutes, sponged gently, and dried away from heat and dust. It is important to observe great cleanliness in the operation of sponging and drying. Particles of dirt or chemical dust on the sponge or chamois may scratch or cause spots on the emulsion. The air should also be entirely free from chemical fumes, particularly acid or sulfur dioxide fumes. Even the slight amount of fumes arising from an open tank of No. 851 Short-Stop can cause the magenta image to fade if the films should be hung nearby to dry.

KEEPING PROPERTIES OF COLOR PROCESSING SOLUTIONS

First Developer No. 502 has excellent keeping qualities. Tightly stoppered samples of the developer have been stored under ideal conditions in the laboratory for over six months and are still perfectly satisfactory for use.

Naturally, when the solution is used repeatedly its keeping properties will be considerably reduced. With optimum care, a solution kept in a covered deep tank or poured back into a stoppered bottle after each use should have a life of three to four weeks, provided the exhaustion capacity is not reached before that time.

The Color Developer has a safe life of approximately two weeks either with or without use if kept in tightly covered containers.

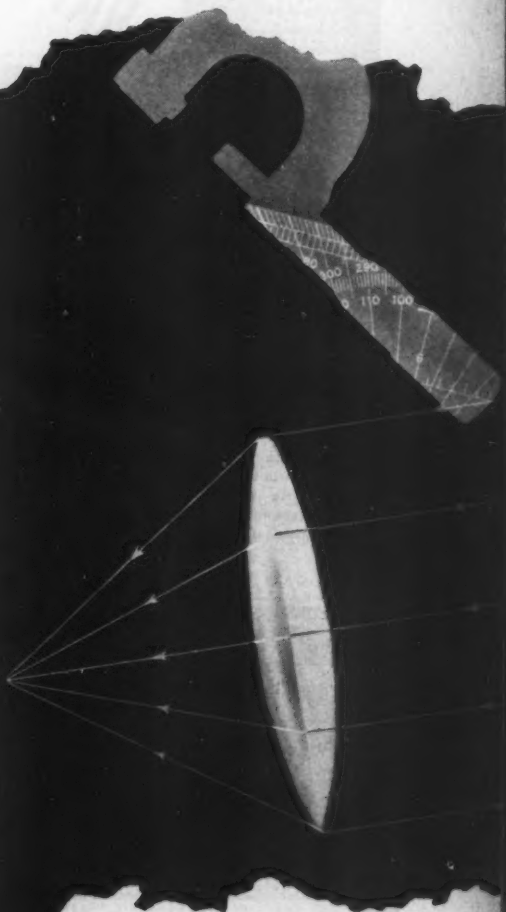
The Short-Stop, Clearing Bath, Bleach and Hypo

(Continued on page 90)

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PHOTO DATA CLIP SHEET

(Continued from page 88)

all have lives of more than a month either with or without use. However, the Short-Stop should be stored in a closed container to avoid excessive release of sulfur dioxide fumes in the darkroom, since in sufficient concentration these may bleach any transparencies which may be drying nearby.

The No. 901 Hardener has a useful life of approximately two weeks.

EXHAUSTION PROPERTIES OF SOLUTIONS

The First Developer and Color Developer of Ansco Color Reversible Film will satisfactorily process at least four 8x10" films, or their equivalent, per liter. Beyond this point, changes in developing characteristics will take place and differences in color balance will result. This may be partially compensated for by increased development times but optimum color quality can not be obtained beyond six or seven 8x10" films per liter.

All the remaining solutions, except the Bleach, have exhaustion capacities of at least six 8x10" films per liter before an increase of time is necessary. Use of these solutions beyond this point is poor economy because they are inexpensive.

Bleach solution No. 709 will require an increase in bleaching time after three to four 8x10" films per liter, and should be discarded entirely after six 8x10" films per liter. Formula No. 713 has a maximum life of eight to ten 8x10" films per liter. Whenever the required bleaching time becomes longer than 12 minutes, bleach is nearly exhausted.

PROCESSING EQUIPMENT

Most types of black-and-white processing equipment are satisfactory for Ansco Color Film.

Standard stainless steel or plastic sheet-film hangers may be used in hard rubber sheet-film developing tanks or in glass battery jars. Glass, stainless steel, plastic, or uncracked enamel trays may be employed.

Inclosed development reels or racks that do not permit free access of light to all portions of the film require that the wet film must be removed for second exposure, then reloaded. With many type reels this may more easily be accomplished if both the film and reel are held under water during the reloading operation. "Open type" wire reels are quite satisfactory for processing 35mm. film and do not make necessary the removal of the film.

Longer lengths of motion-picture film may be wound on large racks made to fit deep tanks of stone or impregnated wood. Reels of the squirrel cage type which only partially immerse the film in the solutions cause excessive aeration of the developers and should be avoided.

With any type of equipment, provisions must be made to secure and maintain vigorous, reproducible agitation in order to avoid streaking and insure consistent results. And above all, strict cleanliness is necessary. Dirty or corroded equipment can lead to disappointing results just as surely as careless processing or improperly compounded solutions.

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PRIZES for Black and White
Any Camera - Any Subject
Landscapes, Interiors, Seascapes,
Window-Views, Still-Lifes**

Contest Rules

1
Take two pictures of the same scene — one picture with and the other without a Polaroid® Light-Polarizing Filter.

2
Fill out a Polaroid Filter Contest entry blank and send it with your pair of pictures to Polaroid Filter Contest, Cambridge 39, Massachusetts. Official entry blanks only are to be used.

3
Choose subjects which demonstrate the usefulness of Polaroid Light-Polarizing Filters in photography. The decision of the judges will be based in part on the extent to which the photographs submitted demonstrate the usefulness of Polaroid Light-Polarizing Filters in improving photographs. Pictorial interest and composition are also important factors.

4
Any resident of the United States may enter the contest except photo finishers, photographic supply dealers, the employees of Polaroid Corporation and of its advertising agency.

5
All prize winners will be notified by mail. The prizes will be awarded as soon as reasonably possible after the close of the contest. The decision of the judges will be final. There is no limit to the number of entries any one contestant may submit. However, a contestant can receive no more than one cash prize.

6
All entries become the property of Polaroid Corporation and the prize-winning pictures may be used for advertising purposes. An effort will be made to return all other pictures entered in the contest, provided they are accompanied by a self-addressed stamped envelope. Polaroid, however, assumes no responsibility for the loss or damage of contestants' pictures at any time.

7
Contest closes at midnight, November 15, 1945. All entries must be postmarked on or before this date, and must be received not later than December 1, 1945.

8
The contest is subject to all Federal, State and local regulations.

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If you win a prize, he wins one too. Ask your dealer how to make better pictures with a Polaroid Light-Polarizing Filter.



Take pictures like these which show how a
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WITH POLAROID FILTER

This pair of pictures shows how a Polaroid Light-Polarizing Filter removes surface glare and reveals surface and sub-surface details. Choose your own subjects: pale blue skies, washed-out clouds, roads, windows, still-lives, portraits—any scene which is improved by better cloud-contrast or reflection-control.

Judges

Fritz Goro, Science Photographer, LIFE; Philippe Halsman, President, Society of Magazine Photographers, Inc.; Robert Shellaby, Science Writer, CHRISTIAN SCIENCE MONITOR; Augustus Wolfman, Editor, NATIONAL PHOTOGRAPHIC DEALER; David O. Woodbury, Contributing Science Editor, COLLIER'S.

Cash Prizes

	BLACK	WHITE
COLOR	\$500	\$500
1st	\$500	\$500
2nd	\$200	\$200
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4th	\$75	\$75
5th	\$25	\$25
6-15th	\$10	\$10
each	each	each

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CAMERA CLUB

NEWS AND IDEAS

ONCE in a while the punch line of a popular gag fits a situation as if made to order for it. Waiting for the breakfast room to open at a prominent Washington D. C. hotel the other day, an elderly Army Officer voiced the sizzling sentiments of twenty people with a punch line of this sort.

We won't say that the girthy, middle-aged plumpstress was newly-rich, or even comment upon her flashy display of jewelry. Suffice it to say that she craved attention—and got it. In a voice that carried fifty feet she aimed a monologue at the officer who apparently had never seen her before. "Don't you think we are spoiling the boys and girls in uniform?" she gurgled. "They are so used to receiving everything 'free,' you know. Why, they don't even appreciate the pictures amateur photographers take of them to send home to their parents! I think—"

"Excuse me, ma'am," murmured the white-haired officer. "I always turn my back when a lady's ignorance is showing." And he did.

Now down to the business at hand . . . We've just seen a copy of the Toledogram, a neat little bulletin which resembles a cablegram and is to be used as the monthly newsy of the TOLEDO CAMERA CLUB. Say the Toledoans: "We are neither the biggest nor the best club because we have a long way to go . . . but whatever we accomplish we will pass on to others." Good luck, TOLEDO C. C. . . and good shooting!

Out Colorado way the DENVER PHOTOGRAPHIC SOCIETY continues to perk along despite some pretty tough sledding in the way of paper shortages and a five-month shift in the date of their Rocky Mountain Salon exhibition. In conjunction with other Denver camera clubs, the Society has launched a new project which includes "teaching convalescent soldiers at Fort Logan and Fitzsimmons General Hospital something of the arts and mysteries of photography."

Whether it be an atomic bomb in the guise of an editorial in the WASHINGTON COUNCIL of CAMERA CLUB'S bulletin, or a few paragraphs devoted to non-controversial subjects, we enjoy editor George Kinkade's meaty comments. Quoth he in a recent issue: "Photographers have degraded the salons—which can be the highest form of mass artistic expression—by copying techniques and ideas which have proven acceptable to judges, by playing the exhibitions like a game."

With the closing of the PSA Continental Print Contest, the PHOTOGRAPHIC SOCIETY of AMERICA announces that the three individual best prints submitted during the season are now being judged by a national

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jury composed of John Vondell, APSA, of Amhurst, Mass.; Stuyvesant Peabody, EPSA, of Chicago; Harvey W. Brown, APSA, of Los Angeles; H. J. Phillips, APSA, of Atlanta; and Robert Barrows, of Philadelphia. (Wonder if there'll be a local aspirin shortage when the "jedges" knuckle down?)

In the 1944-45 series of three competitions just finished by the NEW ENGLAND COUNCIL OF CAMERA CLUBS, the HARTFORD COUNTY C. C. galloped off with top honors among the six clubs in Class A. Second and third place spotlights were claimed by the CONNECTICUT VALLEY C. C. and the AMHURST C. C., respectively. Wearers of the powdered wigs and judicial gowns as judges in the competition were the MANHATTAN CAMERA CLUB, the CAMERA CLUB of NEW YORK, and the ROCHESTER CAMERA CLUB.

Speaking of competition winners, congrats to the PICTORIAL PHOTOGRAPHERS of AMERICA, winners of the METROPOLITAN CAMERA CLUB COUNCIL (New York) trophy for the 1944-45 season's highest score in the Club-of-the-month competition. The contest was a sharp one with the ROCKEFELLER CENTER C. C. taking second place and the INWOOD CAMERA CLUB third. The ROCKEFELLER CLUB, by the way, has moved Gilbert Harris up from the treasurer's chair to the presidential throne for the '45-'46 season.

ATTENTION — COLOR SHOOTERS: Closing date for entries in the Second International Color Slide Salon, sponsored by the CHICAGO COLOR CAMERA CLUB, is September 22nd. The salon will be conducted under the rules of the P. S. A. and persons having slides accepted will be listed in "Who's Who in Color Photography." Rating cards will be issued to every one submitting slides to the salon — cards showing how three of the country's foremost judges rate the entries. Here is your opportunity to find out how closely your color work approaches salon material. Entry blanks may be obtained from William Head Gray, Salon Chairman, 614 So. Kenilworth Ave., Oak Park, Illinois.

When crew members of the U.S.S. Yolo requested pin-up pictures with Yolo County California girls as subjects, four organizations leaped into action and began manning the turret lenses. Since two of the organizations were non-camera clubs, the WOODLAND CAMERA FORUM and the DAVIS CAMERA CLUB enjoyed an advantage, particularly after they had joined forces and won the support of their local newspapers. By the time the smoke lifted, their barrage of clicking shutters had produced 55 prints of 28 different models. Contact prints of models are affixed to the pages of CON-TRAST, the monthly publication of the WOODLAND CAMERA FORUM. Naturally the pictures are quite small but—uh—have you ever had a headache from prolonged eyestrain?

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According to Charles E. Kidner, general manager, the new quarters at 304 Hudson Street, New York 13, N. Y., are to house the service department as well as the factory, general and executive offices of E. Leitz and Company.

Orthazite

COMPLETE INSTRUCTIONS on how Edwal Orthazite should be added to the developer to counteract age fog on old paper, are on the new green and white label. This characteristic, enabling photographers to make out-dated paper usable, has been a boon to dark-room workers during the present paper shortage. Before the paper shortage, Orthazite was used to produce richer contrast on fresh paper. Available at all camera shops, the one ounce jar at 95c treats up to 40 gallons of developer. Write direct to the Edwal Laboratories, Inc., 732 Federal Street, Chicago 5, Illinois for free literature.



G-E Voltage Stabilizer Aids Color Printing At Ansco

MAINTENANCE of constant color temperature during printing operations is substantially aided by use of a General Electric voltage stabilizer at Ansco's San Francisco Laboratories, and is regarded by photographic experts there as the most efficient means for eliminating one of the most disturbing variables in the processing of color transparencies and color prints.

The stabilizer—a compact, automatic device—is conveniently and readily installed closely adjacent to the load. By simply plugging it into any 115-volt outlet, a constant power supply is made available for powering the filament of the photo-enlarger lamp, regardless of line voltage fluctuations up to ± 15 per cent.

Technicians at the Ansco laboratories point out that constant voltage must be maintained for accurate printing of color values, and that the color content of the lamp used in exposing and printing will vary with changes in voltage. Use of the voltage stabilizer to help provide illumination of unvarying brightness was introduced as a part of their research to simplify color printing to the point where it can be done by photographers in their own dark

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rooms. Ansco has postwar plans for general distribution of two new color products whereby color prints can be made (1) by a single exposure using a color transparency in positive form, or (2) through a negative in complimentary color.

Greeting Card Masks

THE LINE of Framo Halftone Printing Masks, which are finding favor among an increasing number of amateurs intent on making their own personal greeting cards, has been further enlarged and completed. With these Masks anyone is enabled to make in a simple and convenient way, Xmas or New Years Greeting Cards with his own personal touch. Also Folding Mounts and Envelopes for mailing are available. For details write to Mr. Fred. D. Fisher, 207 E. 84th St., New York 28.

Hope to Deliver Amateur Cameras by . . .

THE FAIRCHILD CAMERA & INSTRUMENT CORP., New York, has received many inquiries from the press, and from dealers and users of photographic equipment about its post-war production plans. C. A. Harrison, Fairchild, vice president, says:

"Present expectations are that we will offer still cameras for advanced amateurs, and cameras for professional, industrial, medical and special fields. We are now delivering one model medical camera (the 70-mm. fluororecord), have another near production, and a third in design. Production quantities and delivery dates depend entirely on the length of the war and the status of Fairchild's government contracts."

New 4x5 Film Processing Tank

A 4x5 CUT FILM processing tank is being introduced by the C. R. Riley Mfg. Company of North Hollywood, California.

Presented in the natural light color of the plastic ingredients, the tank is built for a maximum load of fifteen cut film hangers and requires a minimum of one-half gallon solution to cover the film. The light-tight lid is equipped with a large, easy-to-grip bar type handle.

Practically indestructible, the tank and lid have passed all heat and cold tests, acid and alkali resistance tests and the ten-foot-drop test both fully loaded and empty, to the satisfaction of movieland's working photogs.

First distribution is being made on the west coast because of present limited supply of war-necessary resins used in the plastic formula, however Riley expects to make national distribution by fall as there are visible signs of more resin becoming available shortly.

The item is manufactured by a new entry into the photo-instrument field and is sold under the registered trademark—Riley-Hollywood. The line will be advertised and guaranteed that "If it's a Riley—it's RIGHT!"

It is guaranteed against defective material and manufacture and retails for \$9.50 for single units (OPA approved) and the sets of three tanks with lids and one without for washing—all properly decaled for use—will retail for \$32.00 for the set.



THERE'S STILL TIME *to Pick Out a Picture* ...and Perhaps Take Your Pick of the Prizes

The DeJUR Photo Contest has another month to go.

If you haven't already sent in your entry (portrait, landscape, sport, action or still-life), do it now. If you have sent in something, send another.

Any of the prizes offered will help you get more fun out of photography and take better pictures. \$2000 worth of DeJUR equipment is offered. Prizes will be awarded in the form of certificates to be exchanged later when new DeJUR merchandise is available. For example:

- 8 mm. DeJUR movie cameras incorporating the latest mechanical improvements.
- Smooth-running, ricker-less DeJUR projectors.
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• VERSATILE enlargers, with Precision Negative Distortion Control.

Winners will be selected for popular appeal, not technical excellence. So—if you have a picture you like a lot, send it in.

DUPLICATE AWARDS FOR SERVICE PERSONNEL AND CIVILIANS

The Contest is open to all civilians in the United States and Canada. Members of the Armed Forces of the United States, at home or abroad, will receive half the prizes, and may enter without using an official entry blank. Simply submit your entries with your full military and home addresses, and, if possible, the name and address of your home photographic dealer.

Families and Friends of Service Personnel may enter pictures in the name of the service man or woman who took them. Help them win. Write and tell them about it.

Brief Rules

Civilians must use official Entry Blanks, available at your dealer's store. Ask for yours today.

Prints submitted become the property of DeJUR-AMSCO CORPORATION, except that those from Armed Forces personnel will be returned if requested.

Send pictures to: Picture Contest Editor, DeJUR-AMSCO CORPORATION, Long Island City 1, New York.

Contest closes at midnight, October 31, 1945.

Decision of the Judges is final.

PRIZES

1st Prize worth \$300
2nd Prize worth \$200
3rd Prize worth \$150
3 more prizes worth \$50 each
10 more prizes worth \$20 each

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SERVICE PEOPLE AND CIVILIANS

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DeJUR-AMSCO CORPORATION • LONG ISLAND CITY 1, NEW YORK



*Pat. No. 2190159

GADGETS, KINKS AND SHORT CUTS

We pay from \$2 to \$7.50 for any Gadget, Kink, or Short Cut accepted by this column.

A Trouble Free Agitator

TO SHAKE or not to shake is not the question here. You have read time and again that agitation pays in better, more sparkling, more evenly developed negatives. Or maybe you have even tried it. This brings us immediately to the point of "How best to shake?"

Here's one way that has been in very satisfactory use in one darkroom for several years. With it you are on the winning side of all the following questions: "Is it efficient?" "Is it easy to keep clean?" "Is it strong and long-lasting?" "Is it regular in action?" "Is it easy to use?" And most important at the moment, "Is it easy to build?"

Now this is the paragraph where I should tell you, nonchalantly, of course, to dig into your scrap pile for a little of this and that and maybe one of those and you will have all you need to build the entire outfit at no cost to you. But to be different and to come more nearly, perhaps, to the truth it is suspected that you will have to spend a dollar or two. I think it is worth it.

You will need a few small pieces of iron, a

small electric motor, and the services of a welder for a few minutes. The electric motor for the outfit in the picture was bought for fifty cents from a stationery store. It was a part of a window display and was used to move some cardboard figures around and about. This motor was particularly suitable because it was already geared down to a fairly slow speed. Any small 110 volt motor may be used if it is geared down to run slowly. Gearing down has the advantage of increasing the pulling power as well as giving a practical speed for agitation.

Shape the top iron pieces so that your tank will slip inside easily without binding, then weld the two ends together. The tank is fitted so that the film is placed parallel to the driving rod. This placement assures maximum "change" of solution across the face of the film.

Bend two iron rods so that they will form the support for the tank. Make sure that the total height is enough to allow the tank to swing back and forth freely. The motor frame is welded to one end of the angle iron that forms the base. The drive rod is made adjustable on the support rod in order to vary the degree of swing. If you use a large negative and have to have a larger quantity of solution in the tank naturally, you can not swing the tank as far without spilling the contents.

My agitator is regulated to give twelve complete revolutions per minute. The advantages of this system are obvious. Everything is stand-

Mistaken Belief No. 18

"Using a magnetic tripper for a camera with built-in 'synch' is like wearing both rubbers AND galoshes."

That is **WRONG** and here is why —

Photographers for the Army, Navy and news services can't miss a shot . . . they must get their pictures right—every time. And—although mechanical built-in "synch" has been available for years—these experts insist on *magnetic*. Many of them prefer the *Abbey MAGNETIC Tripper*.



The *Abbey MAGNETIC Tripper* gives you real remote control . . . fewer lost pictures . . . and better pictures. You can obtain efficient remote control without ten-foot cable releases and current boosters. You can keep on shooting flash when your built-in "synch" fails. Ask your dealer about the complete *Abbey flashgun* with the *Abbey MAGNETIC Tripper*.

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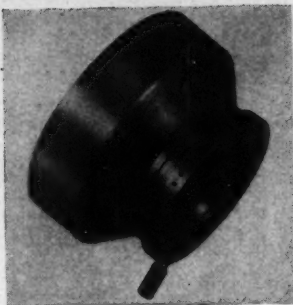
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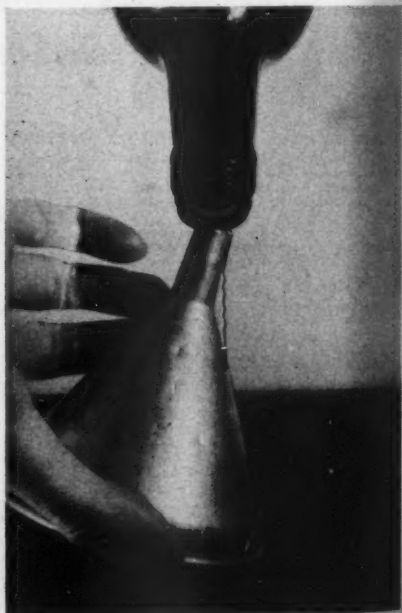


ardized. Agitation is the same every time developing is done. You do not have to watch the tank, just set it and stop it when the time is up.

It is easy to build by studying the picture. Build this and you are assured of regular, trouble-free agitation for years to come.—
Marshall Castleberry.

Speedy Flow

IF A FUNNEL fits tightly in the neck of a bottle, the air inside the bottle is not allowed to escape freely, and results in a sluggish flow of the liquid. To overcome this trouble, slip a bobby pin over the end of the funnel as shown.—William Swallow.



Pull 14 inch low permits b with a normal and subjects w



Advanced engine include helical smooth acting alignment.

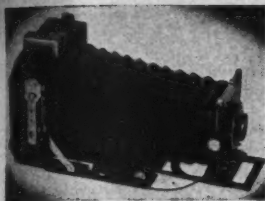


The 18 1/2 inch in prove its value interiors, street jobs, etc.



Cast aluminum bo

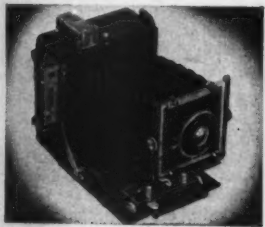




Full 14 inch span double extension bellows permits big images of small objects with a normal lens and big images of distant subjects with a telephoto.



Advanced engineering in the finer details include helical focusing gear and a rigid, smooth acting V groove track for perfect alignment.



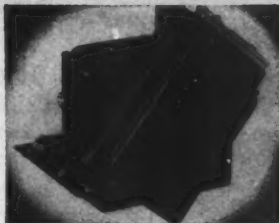
The 1 3/4 inch lateral lens adjustment will prove its value when working in cramped interiors, street scenes, architectural subjects, etc.



Cast aluminum body. leather covered.



The full 2 inch lens board rise (or fall) eliminates need of tilting camera for tall subjects . . . keeps parallel lines parallel.



Swing quickly from horizontal to vertical composition. The light tight revolving back "clicks" into proper position instantly.



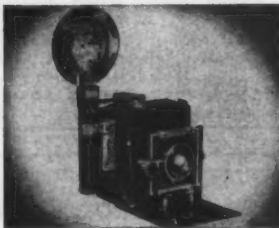
The bed of the camera may be dropped to a 30 degree angle to include maximum foregrounds—and to accommodate extreme wide angle lenses.



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Repairing a Cable Release

CABLE RELEASE cords become frayed and broken from being kinked when the camera is closed. When the fabric breaks they no longer work, the spring pushing past the damaged part instead of the plunger.

Often they can be repaired by drawing the damaged ends of the fabric as close together as



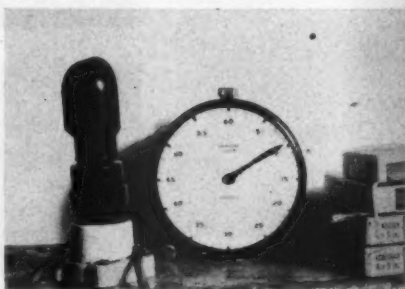
possible and taping the broken ends with scotch or adhesive tape.

This will hold the spring in place just as the fabric connection did and permit the plunger to operate as before.—H. Klein.

Illuminating Darkroom Timer

YOUR DARKROOM TIMER can be illuminated by using a night light, as shown. These fixtures are supplied with a 7 watt white bulb which can be covered with red cellophane or painted. Or you can purchase, in some dime or hardware stores, a red light to fit.

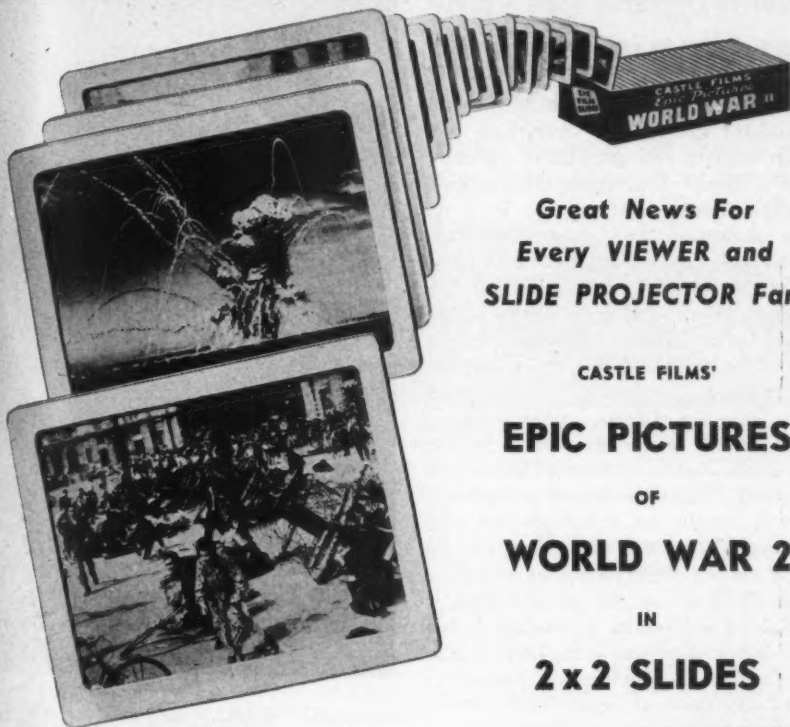
The shield is adjustable, allowing the light to be directed onto the timer face from any position near the clock, shielding the glare



from the photographer's eyes, enabling accuracy without eyestrain. The shield is removable so that the light can be used for general darkroom work if the timer is not needed.—H. Klein.

Binding Slides

LANTERN SLIDES may be masked and bound evenly if the slide is laid upon graf paper. In this way, the lines are seen through the clear areas, or if the slide is dense, the outside lines can be used as a guide.—D. Gray.



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(Continued from page 28)

without my glasses transforms them into big, radiant discs, while everything else appears unsharp and unreal, like a picture out of a dream. This dream-like quality, unnatural though as it may be, is by no means unpleasant, and, more often than not, strangely fascinating. An out-of-focus photograph contains a good deal of this unrealistic effect, and occasionally it will be found that such an impression is just what is needed to depict the mood we want to convey.

The more out-of-focus a photograph is, the larger will be the discs made by the street lights, and more blurred the rest of the picture. The right degree of unsharpness will usually be a compromise that gives enough of the disc-effect without making the rest of the picture unrecognizable. A check-up on the ground glass is essential for best results. I certainly do not claim that unsharpness is the perfect solution for the production of halo-effect around city lights at night. There doubtlessly must be better ways. Maybe a longer time exposure, sharply focused, followed by a shorter exposure with the image out of focus, will give the desired combination of relatively sharp all-over appearance and unsharp light discs. I don't know; I haven't tried that yet. Maybe one of my readers will experiment along these lines, and if he is successful I should be glad if he would let me know.

OF SPECIAL interest to a creative photographer should be lights in motion at night, because they permit, with the help of time exposures, to record movement and time itself in photographs. Classic examples are pictures of moving automobile headlights at night, and photographs of fireworks, where the time exposures record a sequence of bursts on one and the same piece of film, resulting in a condensation of subsequent events in time into one single exciting picture. In both cases photography permits us to create



something original and new, something which we wouldn't have known in this particular form without its help.

Or think of a merry-go-round at night: Again, an instantaneous flash exposure would freeze it into immobility; only a time exposure, recording movement with the help of blurred light, will convey the impression of rapid rotation. Sparks from grinding operations, lighting, and the circular movements of stars offer further opportunities to imaginative photographers for the creation of exciting pictures with the help of time exposures.

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DAWN TO DUSK

(Continued from page 62)

The deadline for finished prints is at 7:00 P. M., when members gather at a downtown restaurant for dinner and the judging. The judge is preferably an importee who can gain the comparative safety of his home in another city after his decisions have been announced. After a member has spent an entire Sunday rushing around getting a picture, he may feel fairly strong about it.

Judging the dawn-to-dusk competitions is not quite the same as judging an ordinary club contest. Judges are instructed to give weight to composition, print quality, toning, and interest, but more than all they are asked to stress whether or not the photographer has carried out his assignment, which is carefully clipped to the bottom of the print. Often pictures which are excellent and dramatic but not quite on the subject are turned down. For instance a member received the assignment, "Religious figure with candle". He assembled a pair of gnarled hands, an open bible, a telegram from the War Department and a burned out candle. Well arranged, excellently lighted and carefully photographed, it made a strong picture, but the judge ruled it did not carry out the assignment. It will be entered in a Retlaw monthly contest and may land a prize. The monthly contests, incidentally, are the consolation of all dawn-to-dusk



print makers who have been "robbed" by the judges, for in the monthly contests they feel quality alone counts.

During dinner, members tell of their adventures during the day. In a recent contest a liberal interpretation was given to the assignment: "Farm building or buildings with or without figure." The contestant selected a small rural outhouse of a type made famous by Chic Sale. As he was studying the subject a farmer stopped him. The farmer understood little English and only vaguely understood that the contestant's sole interest was in obtaining a photograph. Finally the farmer said: "Okay to use eet, but you musta not stay too long."

Another member with the assignment: "Portrait of a baby" found one in a buggy in the park. No one was near, so the photographer prepared to make a picture. At that instant the mother arrived, screamed, "Kidnapper" and began to belabor the photographer with an umbrella. He retreated in good order, however, and later convinced the judge that a portrait of a baby deer fulfilled his assignment.

Occasionally, as a feature of the dinner, a burlesque trial of the author of the "worst print of the day" is held. A luckless individual is haled before the president and his photograph is indicted on counts ranging from "lousy composition" to "disgusting subject matter." A member who is himself something of a practical joker is always chosen. The "trial" is held after the formal judging, and provides a hilarious conclusion for what has continued to be a satisfactory photographic day for the Retlaw Club.

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(Continued from page 22)

mentary and Advanced Photography offered during each of the four terms; Glenn Hogue, Instructor. Course lasts 12 weeks; 3 credits per course given.

WEST VIRGINIA

BETHANY COLLEGE, Bethany, West Virginia. Prof. J. S. V. Allen, Instructor. Photographic theory and Practice; X-ray, spectroscopy and astronomy. Special fee for course is \$4, tuition \$1 per semester for 15 semester hours; \$12 per academic hour for special students.

WEST VIRGINIA INSTITUTE OF TECHNOLOGY, Montgomery, West Virginia. W. L. T. Crocker, Instructor. Photographic technique; darkroom work. News photography, visual aides, advertising photography, Laboratory facilities. \$30 per semester for full schedule of courses; 18 weeks, 6 hours weekly.

WEST VIRGINIA UNIVERSITY, Morgantown, West Virginia. Department of Journalism offers course in news photography. Department of Arts and Sciences offers course in elementary photography. Either course may be carried by regular West Virginia University students, without extra fee.

ALDERSON-BROADDUS COLLEGE, Philippi, West Virginia. Beginning Course in Photography; 2 lecture and 3 laboratory hours Eighteen week term, \$20 for photography a week; 3 semester hours of credit given. course, Fall term; 8 hours Chemistry, prerequisite.

WISCONSIN

LAYTON SCHOOL OF ART, 758 N. Jefferson Street, Milwaukee, Wisconsin. Photography I, Gerhard Bakker, Instructor; George Corbett, Assistant; 2 afternoons or 2 evenings a week. Advanced Photography, 2 afternoons or one evening a week. Portrait Retouching, Joseph L. Smith, Instructor, Wednesday evening. All photography classes are limited in membership, advance registration and tuition required.

UNIVERSITY OF WISCONSIN, Extension

Division, 623 West State Street, Milwaukee, Wisconsin. Has offered local classes in photography in the past, as well as correspondence courses. At least one course is expected to be given during the first semester of 1946.

WYOMING

UNIVERSITY OF WYOMING, Laramie, Wyoming. Prof. Arthur B. Mickey, Instructor. Elementary and Advanced Photography offered by Physics Department. Tuition \$3 per quarter for elementary; \$4 per quarter for advanced. Both are eleven weeks duration, with lecture and laboratory periods; 3 credit hours per term.

WASHINGTON, D. C.

NATIONAL PHOTOGRAPHIC SOCIETY, Washington, D. C. Miss Ann-Katrine Shaw, Secretary (723 Upshur Street, N. W.). Offers at monthly meetings lectures on various phases of photography. Hopes to establish classes in lighting, etc.

UNITED STATES DEPARTMENT OF AGRICULTURE GRADUATE SCHOOL, Washington 25, D. C. Basic Photography, Carl Hanson, Instructor: lectures, demonstrations, and visual material on basic principles and practices in photography, including visual and color photography. Applied Photography, Elbridge Purdy, Instructor: Basic Photography, or equivalent, prerequisite for this course; laboratory and camera room work, under actual working conditions of subjects covered in basic course.

CANADA

UNIVERSITY OF TORONTO, 5, Canada. The Department of Applied Physics gives instruction in photography to students in Civil Engineering, Architecture and Engineering Physics. This is a part of work leading to degrees and is given only to full-time students. Tuition \$291 per year, including all other branches of instruction. Prof. K. B. Jackson, instructor.

AIR CADETS OF CANADA (Manitoba Branch), Winnipeg, Canada. Flying Officer H. A. Provisor, R.C.A.F. (A.C.C.) Chief Instructor. Basic Photography given to Air Cadets only between the ages of fifteen and sixteen; Advanced Photography also taught. No fees.

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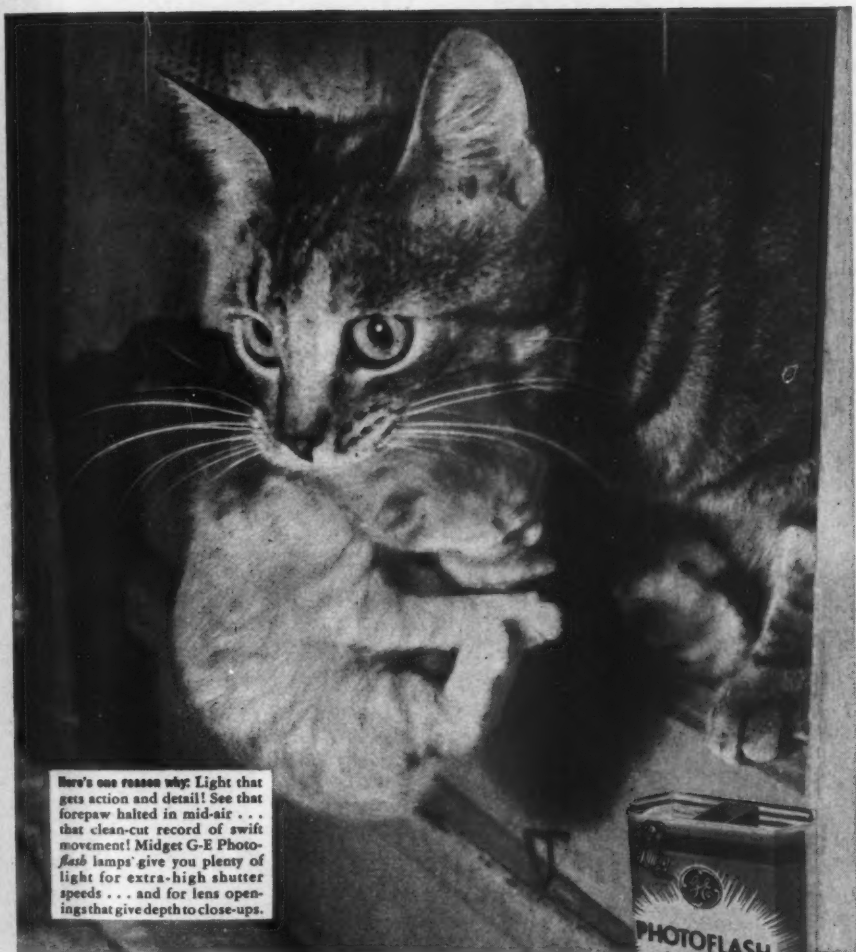
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G-E PHOTOFLASH LAMPS
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MAKE A CONTACT PRINTER

(Continued from page 112)

in a circular motion, working from the center of the glass outward. Care should be exercised to insure an even degree of diffusion over the entire area. To provide greater diffusion, some photographers may prefer to place the ground glass one-half inch below a platen of clear glass.

Masking blades can be made of any available metal: old corset stays, or discarded hack saw blades with the edges ground smooth, will serve admirably. Keep in mind that the masks must be as thin as possible so that the negative and printing paper will come in close contact. Three-sixteenth inch bolts and wing nuts make the blades adjustable. A hole slightly smaller than the bolt is drilled in each end of the blade so that the bolt will fit snugly when installed. The guide bars are cut from 3/16 inch stock and slotted with a jig saw. When installed the bars are shimmed with thin washers under each end, so that the blades will slide easily.

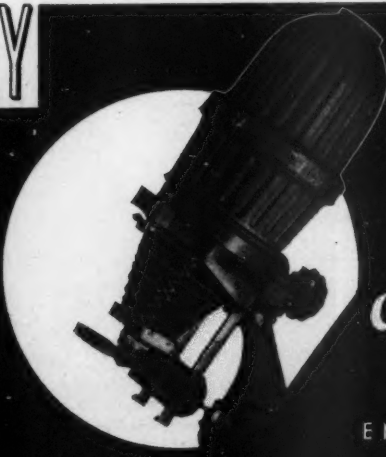
The layer of 1/4 inch felt, glued to the platen insures positive contact between printing paper and negative.

Three-sixteenth inch stock is used in constructing the paper drawer, and the parts are assembled with glue and small nails. The interior is lined with black paper, which is cemented with heavy wood glue. Four small cleats are cut from the same stock and installed so that the hinged cover fits flush with the top edge of the drawer. To test the drawer for light-tightness, place a sheet of contact paper inside and expose the drawer to bright light for two minutes, then develop the paper. If grey streaks show on the print, the drawer is not light-tight. The dimensions of the drawer will accommodate two gross of 2 1/2 x 3 1/2 paper or a proportionally smaller amount of 4x5.

The printer can be painted or stained to suit the builder. The model illustrated was sanded smooth, then given two coats of clear varnish and waxed to a gleaming finish.

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WITH CONDE NAST IN DARKEST AFRICA

(Continued from page 36)

IN Italy I was assigned to main headquarters of the British Eighth Army, at that time on the Adriatic coast in winter quarters. My job was to print surrender and news leaflets for tactical use—for firing by the artillery on the German positions. Both in Algiers and the Gold Coast I had darkrooms in substantial buildings, and had been taking pictures for the OWI and WB—pictures for use in British, French and Italian newspapers, magazines and posters, as well as for relay by mail or wirephoto back to the States. Now, when I had to mount a complete offset printing unit on wheels to follow the artillery of the Eighth Army, I equipped an engraving and platemaking truck which also formed a mobile darkroom.

It was quite a darkroom when equipped. In a six by six van—six wheels and six-wheel drive to take the trucks through mud and snow, over mountains and shell holes—which measures on the inside about eight by twelve feet, I had a complete engraving camera for halftone and line work, plate making apparatus for the offset presses, sink and running water supplied from an 80 gallon tank on top of the cab, an enlarger, developing tanks, an "office" consisting of a folding desk-drawing board, typewriter, filing cabinet, a light box and two months supplies of chemicals for printing and photography. In addition, there was space to work in, a chair, three 11x14 trays and a work table, as well as fluorescent lights powered by the generators that worked the presses. Underneath the work table were my cot, air mattress, sleeping bag, mosquito net and clothing. There was enough floor

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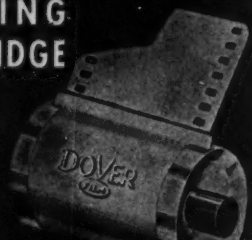
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space in the truck to set up the cot when I wanted to sleep there.

A few weeks after my unit joined the Eighth Army, we moved south of Cassino. I went up to make some pictures. I had watched the attack, the American bombing planes pulverizing the city in the largest raid of the war at that time, then the attacks by the Americans, the Poles, the New Zealanders who finally took the city. I was prepared to witness destruction, but I was not prepared for what I saw.

Cassino was a dead city in May of '44. It smelled of death and the stench was overpowering. But more than that, it looked like death and it felt like death. Not a blade of grass, not a bit of green relieved the gray and brown of intermingled powdered dirt, rubbish and stone walls of houses. To step off the foot-wide path that had been cleared through part of the town asked for trouble.

At one place I came on a dead German soldier secretly tied with bailing wire to a shattered door. Most of the dead had been removed, but this body was covered with disinfectant, and a guard warned people not to come near it. They were afraid to touch it—German ingenuity and fiendishness were never underestimated. Some time later a group of engineers cautiously tied a wire to the door, and from a distance of several hundred feet warily tugged at it. Six buildings blew up. The mines had all been wired to the dead man, whom the Germans had hoped would be picked up by Allied soldiers for a decent burial.

It seemed incredible, even after watching the fight for Cassino, that only a few hours before men had been living here, that only a few weeks before this was a normal, civilized town in a peaceful countryside, dominated by a mountain and an Abbey that now was quiet rubble blending into a picture of ruin. I was no hardened soldier. For two days after that visit I was sick from the smell and memory of that deserted village.

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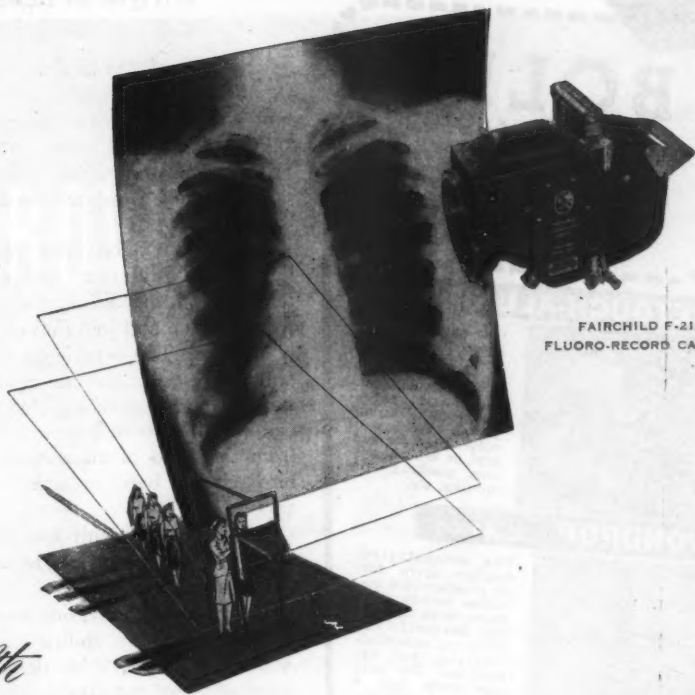
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WINTER slowed up the battle, and we who had been in the dry, dusty interior of Italy all summer were back at the Adriatic, cold winds off the choppy seas, for the winter. Spring of 1945 came, and with it the last attack, a quick, heavy culmination of weeks of preparation and planning. An afternoon of bombing, an evening of artillery and flame throwers, a night of artillery and tanks and infantry and the winter line was broken. The Germans were routed; back to the Po they went, and held temporarily. On across the Po and heading for the Alps, in riot and rout, with no motor transport and only a semblance of order. Then it was over.

With the end of the Italian battle, tactical propaganda was finished. We had printed over twenty million leaflets in the mobile unit, had worn out six portable offset presses, had sent over thousands of shells of leaflets. The last few weeks of the battle had brought in prisoners with leaflets in such quantities that we could not keep track of them, and had to content ourselves with cross section interrogations and checks on prisoners carrying leaflets that had been shot or dropped on them.

After the usual delays and the customary red tape that I had grown used to in twenty-nine months overseas, I received my papers—"Mission completed; for re-assignment." And—most important of all—a ticket home.

We boarded the ship. I had a sort of a stateroom—shared it with 500 first lieutenants. We stood in line to get on board, to draw blankets, to get ship stores, to get food three times a day, to take a shower, to shave, to get off. If it hadn't been for my cameras, I would have swum in. But it's just as well that I saved my strength; they say it's a long way to my next job in the Pacific . . . where the ex-combat photographer will become one of the educators of the Japanese.



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RHYTHM IN DESIGN

(Continued from page 39)

match and take unified form. When dry, the prints were sorted into the sets of four and mounted to make different patterns.

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Closing Date	Name of Salon	For Entry Blank, Write to	Number of Prints and Entry Fee	Dates Open to Public
Exhibit to see	Third Annual Dayton Salon of Photography.			Dayton Art Institute, Forest and Riverview Aves., Dayton, Ohio, Sept. 2-30
Exhibit to see	Fifty-fourth Toronto International Salon of Photography.			Eaton's Fine Art Galleries, Toronto, Canada, Sept. 10-22
Exhibit to see	★Mississippi Valley Salon of Photography.			The Artists' Guild, St. Louis, Mo., Sept. 15-30
Exhibit to see	★1945 Pasadena International Salon of Photography.			Pasadena Art Institute, Pasadena, Calif., Sept. 15-Oct. 21
Exhibit to see	★Amarillo International Salon (formerly Tri-State Salon).			Arts and Crafts Center, Amarillo, Texas, Sept. 16-30
Exhibit to see	★Fifth Annual Victoria International Salon of Photography.			Empress Hotel, Victoria, Canada, Oct. 7-14
September 23	★Second International Color Slide Salon.	Frin Vanden, 620 N. Michigan, Chicago 11, Ill.	0	\$1.00 Chicago Historical Society, Clark St. and North Ave., Chicago, Ill., Oct. 7-15
September 24	Twentieth Annual Salon of Photography, Museum of Fine Arts of Houston.	Museum of Fine Arts of Houston, Main and Montrose Blvd., Houston 5, Texas.	4	\$1.00 Museum of Fine Arts of Houston, Houston, Texas, Oct. 14-Nov. 4
October 10	★Tenth International Salon of Photography of the Photo Pictorialists of Milwaukee.	Donald K. Meeen, Salon Chairman, Photo Pictorialists of Milwaukee, 740 N. Plankinton Ave., Milwaukee, Wis.	4	\$1.00 Milwaukee Public Library and Museum Bldg., Milwaukee, Wis., Nov. 4-18
October 14	★1945 P.S.A. Exhibition of Photography.	Thomas H. Miller, General Chairman, 275 Chelmsford Road, Rochester 10, N. Y.	Four sections: B and W pictorial, Color, Nature, including color, Technical including color.	\$1.00 for each section Rochester Museum of Arts and Sciences, Rochester, N. Y., opens November 4
October 15	Thirty-sixth Chicago Salon.	Chicago Camera Club, 137 N. Wabash Ave., Chicago 2, Ill.	4 Monochrome and/or 4 color	\$1.00 Chicago Camera Club, 137 N. Wabash Ave., Chicago, Ill., Nov. 5-Dec. 4
October 20	Sixth Annual Vancouver International Salon of Pictorial Photography.	Mr. E. Atkinson, 631 Howe St., Vancouver, B. C., Canada.	4	\$1.00 Vancouver Art Gallery, Vancouver, B. C., Canada, Nov. 13-Dec. 2
November 3	10th Annual Travel Salon of the Metropolitan Camera Club Council, Inc.	B. C. Nourse, Salon Director, Metropolitan Camera Club Council, Inc., 106 W. 13th St., New York 11, N. Y.	4	\$1.00
November 6	14th Annual Minneapolis Salon of Photography.	Robert McFerran, Chairman, 816 Medical Arts Bldg., Minneapolis 2, Minn.	4	\$1.00 Minneapolis Institute of Arts, Minneapolis, Minn., Dec. 1-30

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